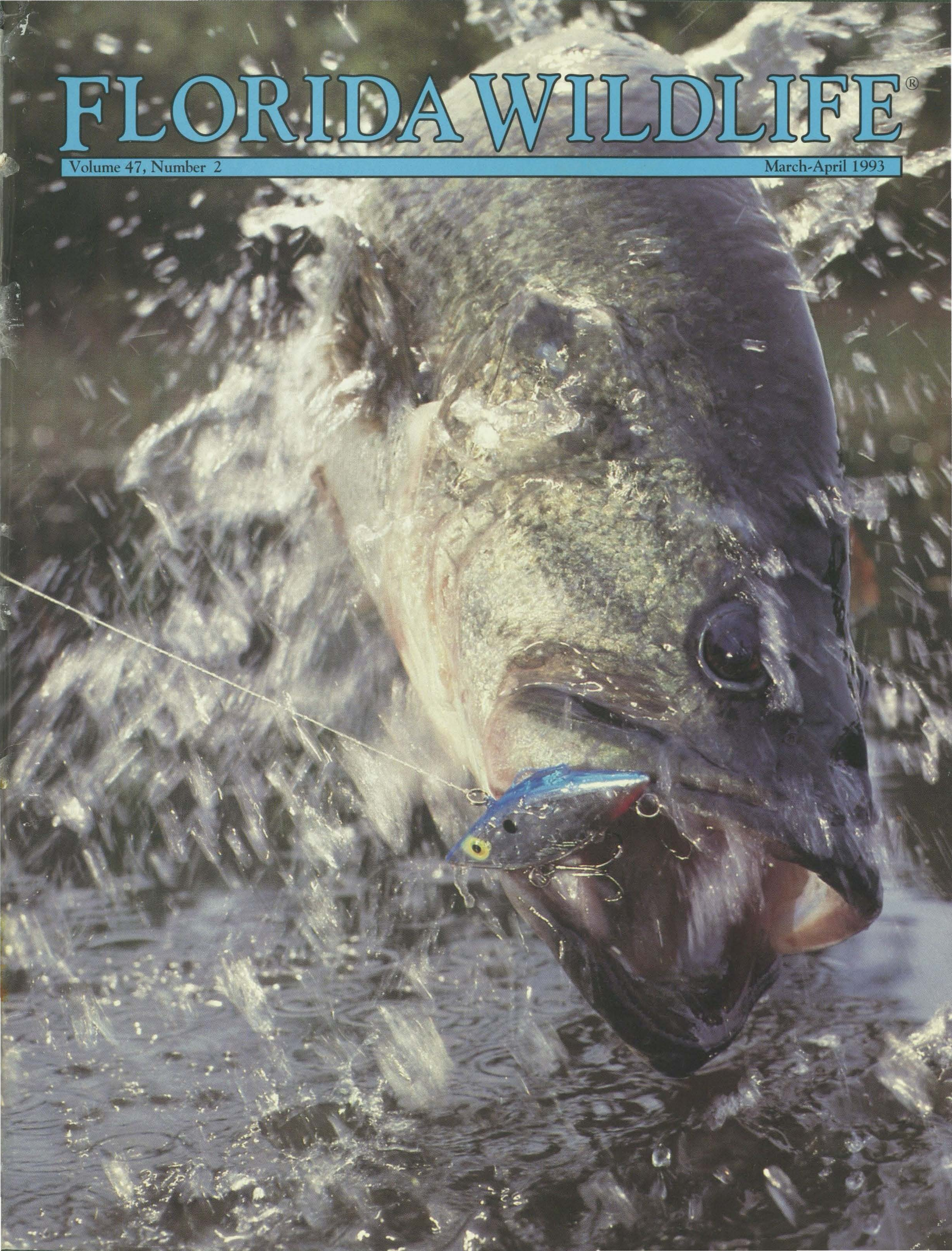
FLORIDA WILDLIFE®

Volume 47, Number 2 March-April 1993



CLARK FRAZIER

Keep Them
Wild and Free

Humans love wildlife, and they love to feed and care for orphaned young animals. But, well-meaning people are drawing Florida's wild animals into danger by feeding them. The results are road deaths, increased disease, improper nutrition, social disorders and stress for wild animals. In most cases, feeding wild animals is unnecessary, and in some cases it is illegal. Worse, it can cause animals to lose their ability to survive in the wild and unnaturally concentrate animal populations and diseases.

What You Can Do:

- Properly managed birdfeeders usually aren't harmful for birds. However, it is healthier for songbirds if you install their native food plants, rather than artificial feeders. You then ensure the birds nutritious food, cover and shelter without altering their natural habits.

- Leave "orphaned" animals in the wild. Although baby animals may seem abandoned, their parents are usually nearby. Taking a baby away from its parents is always a risk to its life. If a young bird has prematurely fallen from its nest, try to return it to the nest. If you find a wild animal that is obviously injured, call a veterinarian or a wildlife rehabilitator for advice.

- Animals are most vulnerable while they are mating or bearing and rearing their offspring. We can even affect animals by startling them from their daily routine of survival. Some animals subsist on meager diets, and if they have to spend energy fleeing a hard-won meal, they suffer harm. Flight from humans also may expose an animal to predators. Be a responsible wildlife watcher. Find out which animals are in your area and what they might be doing during each season of the year.

- Share your interest in wildlife with a friend or introduce a child to wildlife by birdwatching, hiking, collecting leaves, planting a native tree or building a bird house.

WHAT
HAVE
YOU
DONE FOR
WILDLIFE
LATELY?

For more information on maintaining natural diets for wildlife, write to the **Nongame Education Section, Florida Game and Fresh Water Fish Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600** for a free copy of *Planting a Refuge for Wildlife* and *What Have You Done For Wildlife Lately?*

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Fish Commission 1993

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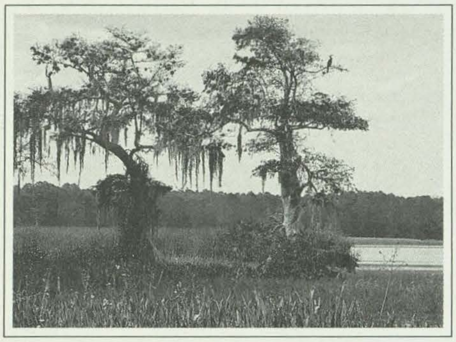

Our annual fishing section focuses on the Kissimmee Chain of Lakes in central Florida. Turn to page 13 to read about the fishing there and Commission efforts to manage the fisheries in the face of the area's massive population growth.

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Covers

Doug Stamm's camera caught a largemouth bass in mid-leap for the front cover. James Valentine captured the beauty of the Kissimmee River State Park for our back cover.

Printed on recycled paper.

Rescued Eagle Egg

Hatched at Audubon Center

By Peggy Lantz

Someone obviously didn't want it there anymore. Perhaps he didn't consider the attention his illegal act would generate. But one late-December night in Pinellas County, someone used a chain saw to cut down a 50-foot pine tree bearing a bald eagle nest with two eggs inside.

One of the eggs broke in the fall, but the other survived because it rode to the ground wrapped in the mossy lining of the nest. The following morning a volunteer observer found the egg, wrapped it in hot packs and towels and carried it to the regional office of the Florida Game and Fresh Water Fish Commission in Lakeland.

The Commission notified Florida Audubon's Madalyn Baldwin Center for Birds of Prey, and the curator, Resee Collins, picked up the egg that afternoon. Collins and a veterinarian verified that the embryo inside the egg was still alive.

Twenty-four hours later, the egg was placed in the nest of two permanently injured, captive bald eagles at the Center for Birds of Prey in Maitland. These paired eagles, each missing one wing from old injuries, had nested and laid infertile eggs for four consecutive years. They had laid an egg again this season and were incubating it. The wild eagle egg was slipped into their nest for them to incubate along with their own.

THERESE STEMLAND

CHARLIE HEIDECKER

A video camera was installed to monitor the nest 24 hours a day, and a TV monitor allowed visitors to the Florida Audubon Gift Shop to view the activity in the nest. All other access to their area was restricted. One staff member entered the area twice a day to leave food – fish either freshly dead or placed alive in their pond. The staff member didn't talk or do anything – even before the chick hatched – that would inure the eaglet to the presence of humans.

The following Saturday, the chick began pipping, opening a tiny crack in the egg. On Sunday, the chick could be heard, and the adult eagles stared at the egg and then brought it food. By that afternoon, the chick had pipped all around the shell. Sometime in the night, after a normal, 36-hour struggle, the eaglet hatched from the egg. When a volunteer saw it the next morning, the chick was dry, indicating it had been out of the shell for some time.

The story made headlines nationwide and even received network news coverage. The center sponsored a contest to name the eaglet, resulting in 1,305 responses and 719 different names. The staff selected "Seminole Wind," suggested by Brenda Tafelski of Clearwater, from the entries.

On Feb. 9, the 5-week-old eaglet was placed into an active nest close to the original nest site. The young bird weighed 6 pounds and had a 42-inch wing spread. Its partially feathered wing tips were one inch long. The nest had been used successfully for the last few years and already had two chicks the same size as Seminole Wind. The new resident had a full crop when placed there, and extra food was left at the nest.

At 5 weeks of age, Seminole Wind was old enough to be safe from competition from the other chicks, but young enough to have had minimal impact from humans. Now it will mature in a nest 50 feet up in a tree, instead of 10 feet up in a cage. It will have parents and siblings that can flap their wings and fly. And it will have a better chance to fly free as a wild bald eagle.

The Commission is searching for those responsible for the destruction of the eagle's nest and tree. Anyone with information is encouraged to call the Wildlife Alert hotline at 1-800-282-8002. You can remain anonymous, and if your call results in an arrest and conviction, you could be eligible for a cash reward. ▷

Adopt a Bird

The two captive bald eagles that cared for Seminole Wind are Prairie, a female that has been at the Center for 13 years, and T.J., a male that came 12 years ago. Both eagles have lost one wing, Prairie to an arrow and T.J. from an injury incurred in a collision with a power line. For the past four years, they have engaged in courtship activities, nest-building and egg-laying. The eggs, however, are infertile, probably because the birds cannot complete mating without the use of both wings for balance.

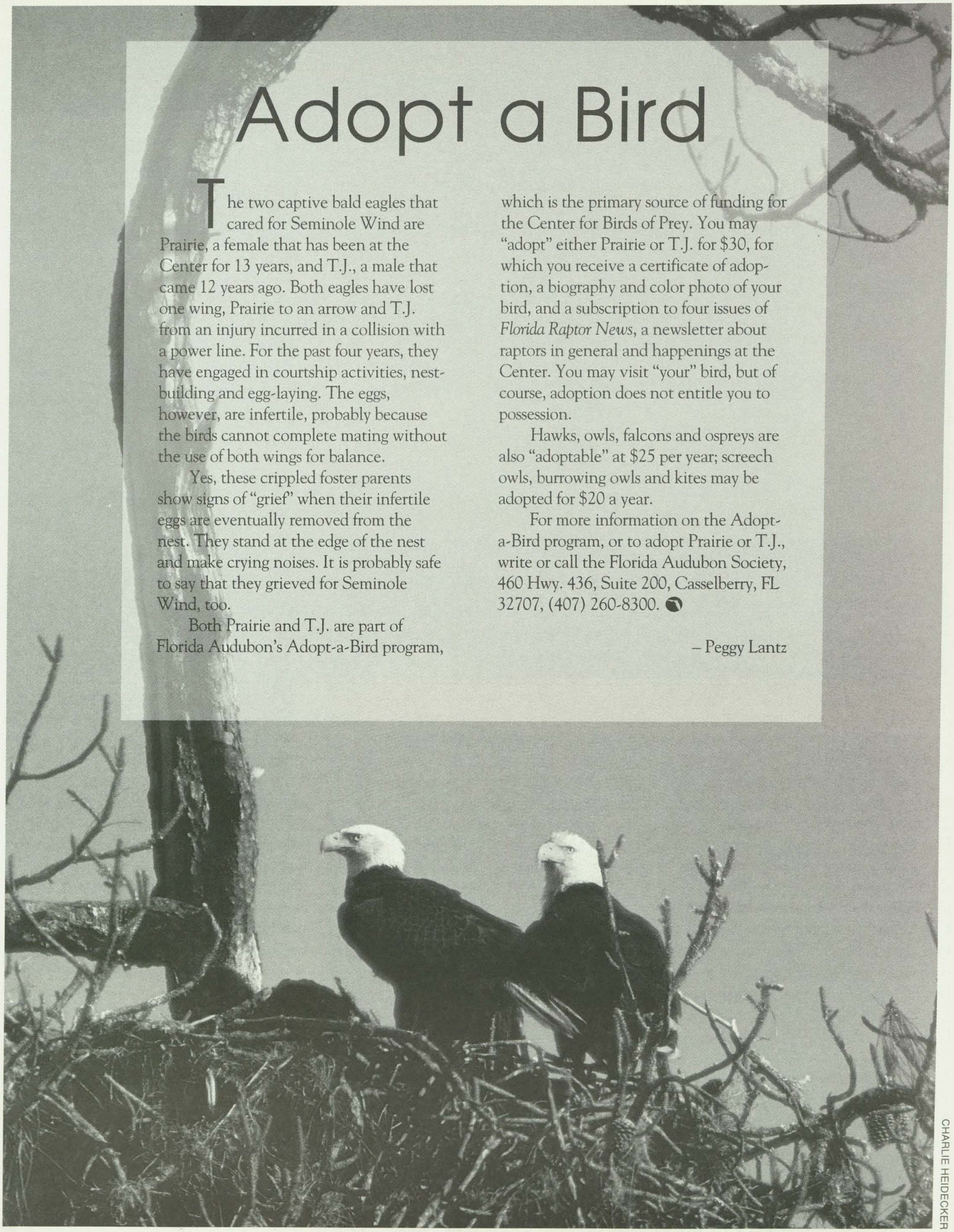
Yes, these crippled foster parents show signs of "grief" when their infertile eggs are eventually removed from the nest. They stand at the edge of the nest and make crying noises. It is probably safe to say that they grieved for Seminole Wind, too.

Both Prairie and T.J. are part of Florida Audubon's Adopt-a-Bird program, which is the primary source of funding for the Center for Birds of Prey. You may "adopt" either Prairie or T.J. for $30, for which you receive a certificate of adoption, a biography and color photo of your bird, and a subscription to four issues of *Florida Raptor News*, a newsletter about raptors in general and happenings at the Center. You may visit "your" bird, but of course, adoption does not entitle you to possession.

Hawks, owls, falcons and ospreys are also "adoptable" at $25 per year; screech owls, burrowing owls and kites may be adopted for $20 a year.

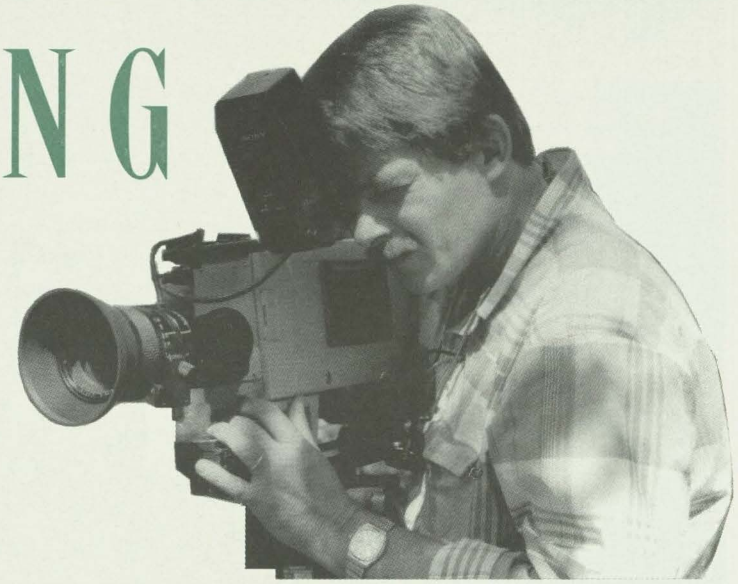
For more information on the Adopt-a-Bird program, or to adopt Prairie or T.J., write or call the Florida Audubon Society, 460 Hwy. 436, Suite 200, Casselberry, FL 32707, (407) 260-8300.

– Peggy Lantz



CHARLIE HEIDECKER

EXPLORING FLORIDA



With a TV Camera

By Kris Thoemke
Photographs by Laurie Grant, WSFP-TV

The first sound I hear is, "Speed." It's the cameraman's signal to the director that the camera is recording. This word is closely followed by a quick hand signal from the director. It's show time!

Welcome to 'Exploring Florida.' I'm Kris Thoemke, and today Lou Toth, a biologist with the South Florida Water Management District, is going to take me on the Kissimmee River. Lou has been working on the District's project to restore the river. This is going to be a really interesting show.

In producer's language this is a "tease." That's how each episode begins. It's designed to get your attention. If successful, you will spend the rest of the upcoming half hour watching "Exploring Florida." For me, the tease is the hardest part of the show. The trick is to look into the sterile glass lens of the camera, say my lines correctly and with enthusiasm, and look fresh. Generally, it is one of the last shots we do at the end of a long day. By then I don't feel too fresh, so it often requires 10 or 12 tries in order to get a good take.

For the past three years I've had a close-up look at Florida's natural resources. Working with Richard Canter, the senior producer for WSFP-TV, the PBS affiliate for southwest Florida, we've produced 40 half-hour programs about some of Florida's unique natural resources and the people involved in studying and protecting them.

The program format is similar to the show, "This Old House." As host, I accompany my guest to view and tape some special aspect of Florida's natural resources. For the Kissimmee River program, we examined the process that scientists and water managers will use to restore the Kissimmee to the meandering river it was until the 1960s. That's when the federal government converted the river into a straight and deep waterway as a flood-control measure. Unfortunately, it destroyed the river's ability to support fish and wildlife.

This episode showed viewers how scientists designed an experimental project to resuscitate the river. Their success will be used on a larger scale to repair the ecological damage done to the Kissimmee.

Creating an episode of "Exploring Florida" has some similarities to a well-planned fishing trip. You get up early, get on the water early, and hope that the day has plenty of action. I was up at 5 a.m., ate a light breakfast, gathered my gear and quietly slipped out of the house. I met Ken Hilton, our videographer, and we loaded the van and left to pick up our producer, Richard Canter. We were on the road by 6 a.m. The only things missing were the rods, reels and bait. There would be plenty of action, but all we'd leave with at the end of the day would be several hours of raw footage to take back to the studio and convert into a finished product.

Unlike some of the other programs in the series, this one looked like it wouldn't be too difficult to shoot. The show opens as Lou and I begin our trek down the canal. To the viewer at home, it looks simple enough. The adage that "looks can be deceiving" was never more true than in the world of television production. By the ▷

It's hard to look cool on camera after lugging heavy equipment to a remote location under the hot Florida sun.

time we set up the first shot, decided what we would talk about, and found the best positions relative to the sun's light, it was hot. Everyone was sweating.

Hollywood productions have an army of people to take care of every detail. In our world, there is no makeup person to make you look cool, grips to help carry equipment, or caterer to bring you food and drink every few minutes. In fact, I don't use makeup, we take turns carrying the heavy camera, and we snack on pretzels and water while we work.

While I'm debunking TV fallacies – it's *not* as effortless as it seems, and we *don't* do or see these wonderful things in a span of 30 minutes, or even a day. What you don't see are the 10 minutes of unusable footage for every minute that becomes a part of the program. Nor do you see the videographer who must hold perfectly still while standing next to a rattlesnake (that we don't tell him about until we finish the shot). Then there is the quick-thinking producer and host who must adapt their original plans in

order to meet the surprises thrown our way when on location. These range from temperamental equipment to witnessing an especially unusual or remarkable event.

On this shoot, we had to contend with fighter pilots practicing bombing runs on a nearby parcel of land. A couple of times, in the middle of a really good scene, our voices disappeared as an impressive piece of military-gray hardware streaked over our heads at 600 mph, afterburners glowing and roaring to teeth-rattling proportions. When quiet returned, we started again, this time keeping one eye looking skyward.

We focused on the installation of several diversion weirs that shunted water from the canal back into parts of the original river channel. While riding in the boat, we talked about the history of the river, how and why it was channelized, and what Lou and his colleagues want to do to reverse the ecological damage.

As we do for every "Exploring Florida" episode, I take an active part in the guest's on-site research. In one scene we anchored the boat and did some benthic sampling. We lowered what looks like a small steam-shovel bucket to the bottom, took a "grab" of mud, rinsed it in a sieve and examined the small crustaceans and other aquatic organisms we found there. Later, we measured the water quality in the canal. The dramatic lack of oxygen in the water explained why the channelized Kissimmee has so few fish in the summer.

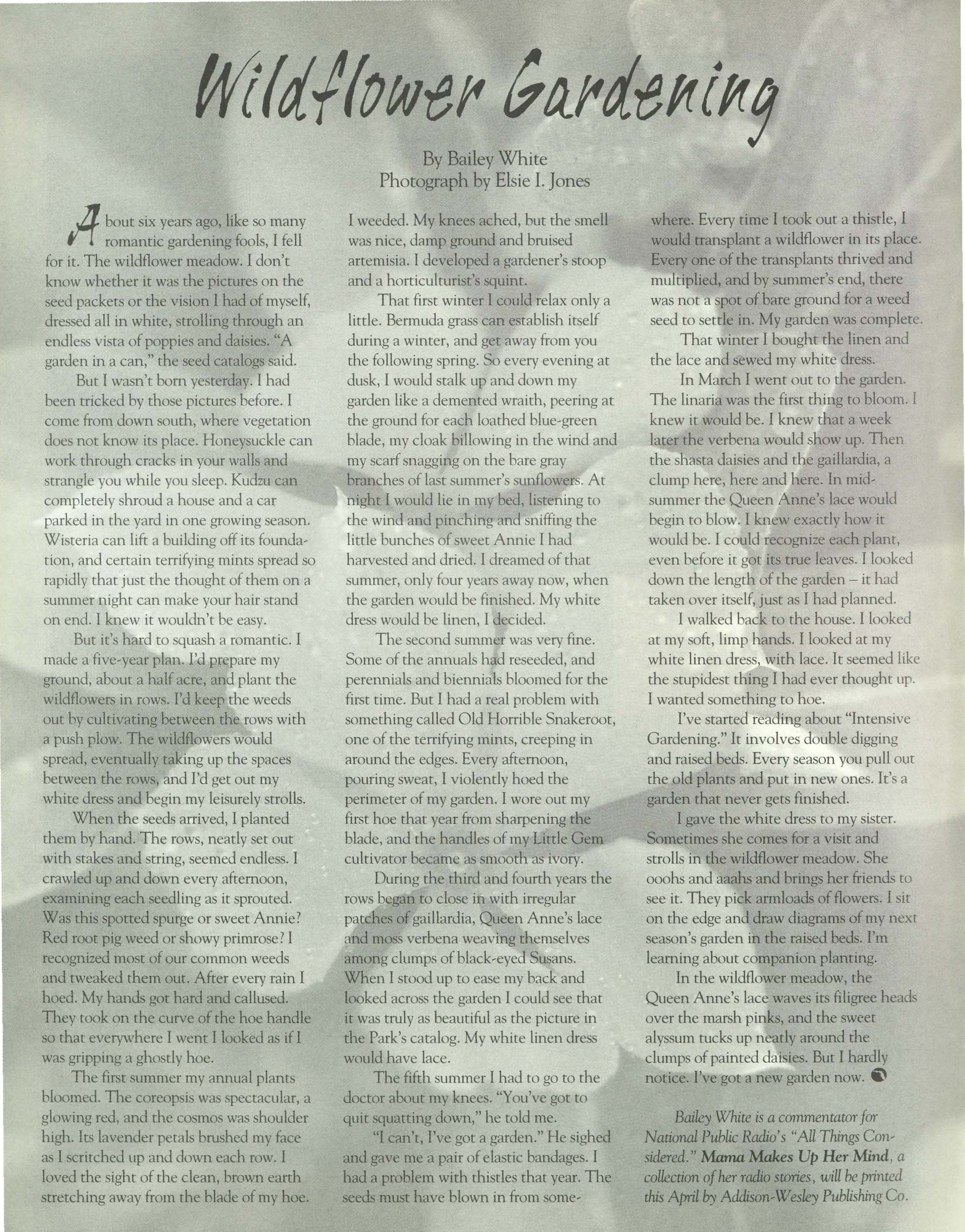
In other "Exploring Florida" shows, I've fed a bottle of formula to "Moose," a baby manatee at Sea World; captured adult manatees in Tampa Bay with Department of Natural Resources biologists; captured and tagged an 8-foot alligator in the Florida Panther National Wildlife Refuge; and accompanied Commission biologists as they electroshocked the Peace River as a part of their fish research program.

The purpose of creating a show around such events is to show the public how scientists examine and learn about our natural resources. Most people never have the opportunity to see the nuts-and-bolts work that goes on concerning protecting the state's natural resources. "Exploring Florida" offers this behind-the-scenes look at scientific research.

The Kissimmee River program went well. Lou was an easy guest to work with. We took our samples on cue, repeated the shots if something went wrong and did our best to look cool despite the heat. On the ride home, I reflected about how lucky I was to spend a day outdoors and bring back the day's experience to share with thousands of other people.

Kris Thoemke, Ph.D., is a biologist, naturalist, and radio and TV host. "Exploring Florida" airs on PBS stations throughout Florida.

We explore Florida's natural resources with scientists who study them.



Wildflower Gardening

By Bailey White
Photograph by Elsie I. Jones

About six years ago, like so many romantic gardening fools, I fell for it. The wildflower meadow. I don't know whether it was the pictures on the seed packets or the vision I had of myself, dressed all in white, strolling through an endless vista of poppies and daisies. "A garden in a can," the seed catalogs said.

But I wasn't born yesterday. I had been tricked by those pictures before. I come from down south, where vegetation does not know its place. Honeysuckle can work through cracks in your walls and strangle you while you sleep. Kudzu can completely shroud a house and a car parked in the yard in one growing season. Wisteria can lift a building off its foundation, and certain terrifying mints spread so rapidly that just the thought of them on a summer night can make your hair stand on end. I knew it wouldn't be easy.

But it's hard to squash a romantic. I made a five-year plan. I'd prepare my ground, about a half acre, and plant the wildflowers in rows. I'd keep the weeds out by cultivating between the rows with a push plow. The wildflowers would spread, eventually taking up the spaces between the rows, and I'd get out my white dress and begin my leisurely strolls.

When the seeds arrived, I planted them by hand. The rows, neatly set out with stakes and string, seemed endless. I crawled up and down every afternoon, examining each seedling as it sprouted. Was this spotted spurge or sweet Annie? Red root pig weed or showy primrose? I recognized most of our common weeds and tweaked them out. After every rain I hoed. My hands got hard and callused. They took on the curve of the hoe handle so that everywhere I went I looked as if I was gripping a ghostly hoe.

The first summer my annual plants bloomed. The coreopsis was spectacular, a glowing red, and the cosmos was shoulder high. Its lavender petals brushed my face as I scritched up and down each row. I loved the sight of the clean, brown earth stretching away from the blade of my hoe. I weeded. My knees ached, but the smell was nice, damp ground and bruised artemisia. I developed a gardener's stoop and a horticulturist's squint.

That first winter I could relax only a little. Bermuda grass can establish itself during a winter, and get away from you the following spring. So every evening at dusk, I would stalk up and down my garden like a demented wraith, peering at the ground for each loathed blue-green blade, my cloak billowing in the wind and my scarf snagging on the bare gray branches of last summer's sunflowers. At night I would lie in my bed, listening to the wind and pinching and sniffing the little bunches of sweet Annie I had harvested and dried. I dreamed of that summer, only four years away now, when the garden would be finished. My white dress would be linen, I decided.

The second summer was very fine. Some of the annuals had reseeded, and perennials and biennials bloomed for the first time. But I had a real problem with something called Old Horrible Snakeroot, one of the terrifying mints, creeping in around the edges. Every afternoon, pouring sweat, I violently hoed the perimeter of my garden. I wore out my first hoe that year from sharpening the blade, and the handles of my Little Gem cultivator became as smooth as ivory.

During the third and fourth years the rows began to close in with irregular patches of gaillardia, Queen Anne's lace and moss verbena weaving themselves among clumps of black-eyed Susans. When I stood up to ease my back and looked across the garden I could see that it was truly as beautiful as the picture in the Park's catalog. My white linen dress would have lace.

The fifth summer I had to go to the doctor about my knees. "You've got to quit squatting down," he told me.

"I can't, I've got a garden." He sighed and gave me a pair of elastic bandages. I had a problem with thistles that year. The seeds must have blown in from somewhere. Every time I took out a thistle, I would transplant a wildflower in its place. Every one of the transplants thrived and multiplied, and by summer's end, there was not a spot of bare ground for a weed seed to settle in. My garden was complete.

That winter I bought the linen and the lace and sewed my white dress.

In March I went out to the garden. The linaria was the first thing to bloom. I knew it would be. I knew that a week later the verbena would show up. Then the shasta daisies and the gaillardia, a clump here, here and here. In midsummer the Queen Anne's lace would begin to blow. I knew exactly how it would be. I could recognize each plant, even before it got its true leaves. I looked down the length of the garden – it had taken over itself, just as I had planned.

I walked back to the house. I looked at my soft, limp hands. I looked at my white linen dress, with lace. It seemed like the stupidest thing I had ever thought up. I wanted something to hoe.

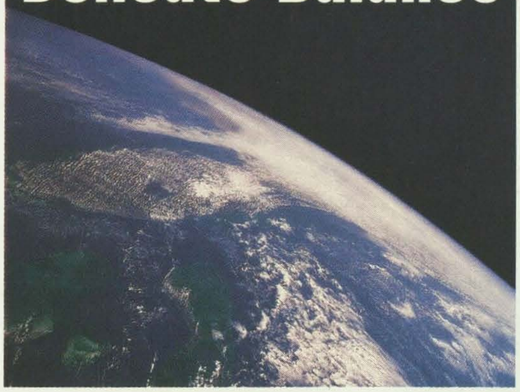
I've started reading about "Intensive Gardening." It involves double digging and raised beds. Every season you pull out the old plants and put in new ones. It's a garden that never gets finished.

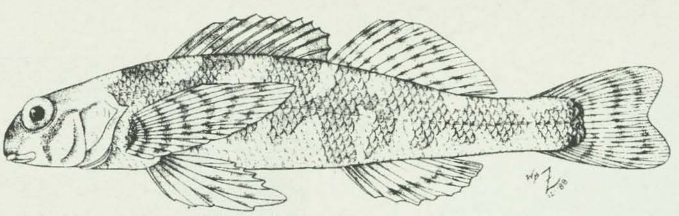
I gave the white dress to my sister. Sometimes she comes for a visit and strolls in the wildflower meadow. She ooohs and aaahs and brings her friends to see it. They pick armloads of flowers. I sit on the edge and draw diagrams of my next season's garden in the raised beds. I'm learning about companion planting.

In the wildflower meadow, the Queen Anne's lace waves its filigree heads over the marsh pinks, and the sweet alyssum tucks up neatly around the clumps of painted daisies. But I hardly notice. I've got a new garden now.

Bailey White is a commentator for National Public Radio's "All Things Considered." ***Mama Makes Up Her Mind****, a collection of her radio stories, will be printed this April by Addison-Wesley Publishing Co.*

Delicate Balance





Species: Harlequin darter (*Etheostoma histrio*)
Florida Status: Species of Special Concern
Federal Status: None

Webster's Dictionary defines a harlequin as a comedian with a shaved head, masked face, wearing variegated tights and bearing a wooden sword.

Now, what does such a bizarre character have to do with fish? A secondary definition describes a variegated color pattern or a combination of patches on a solid background of contrasting color. Thus, harlequin aptly describes the body coloration of one of our rarest freshwater fishes. Another description would be "a small, snub-nosed darter that is blotched and speckled all over." Frankly, they are a bit unusual.

Harlequin darters belong to the perch family, *Percidae*. Sixteen species of darters inhabit Florida, but only four occur in the peninsular portion of the state. Creeks and rivers of Florida's panhandle are home to the remaining dozen. About half of Florida's darter species are relatively rare within the state.

Discerning one darter from another can be difficult, even for biologists. But the harlequin darter would be easy to pick out of a lineup. It has a blunt, snub-nosed profile and noticeably large pectoral fins. Its body and fins are spotted and mottled, and the first dorsal fin bears a red or wine-colored band along the edge. Males usually are more brightly colored and more strongly marked than females. Breeding males typically display contrasting green and brown coloration.

Harlequin darters range widely throughout the Mississippi River and other Gulf Coast streams from Florida to Texas. The Escambia River, in northwestern Florida, represents the eastern limit of its distribution along the Gulf Coast and is the only Florida stream containing this species. Zoogeographers, biologists who study the distribution of animals, would call this a peripheral species in Florida, since our state lies on the outer edge of its overall geographic range.

Throughout its territory, the harlequin darter is generally uncommon, though it may be locally abundant in some areas outside Florida. It is quite rare within the Florida portion of the Escambia River system. How rare is rare? Of 26,000 fish collected by Game and Fresh Water Fish Commission biologists on the Escambia River since 1977, only six were harlequin darters. Five came from the main channel of the river, the other from Pine Barren Creek, a tributary. Other biologists have collected another six harlequins from the Escambia River and one other tributary creek.

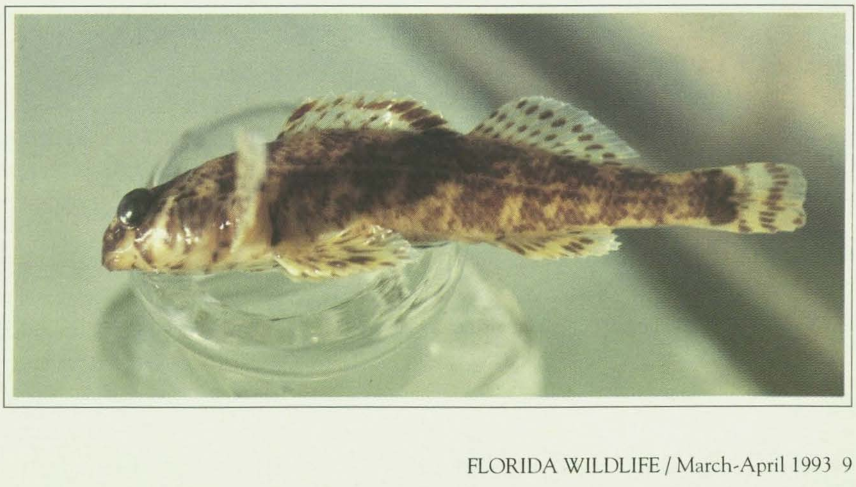
Relatively little is known about the life history of harlequin darters. Throughout its range, the species inhabits both large rivers and medium-sized creeks. Despite its rarity, this bottom-dwelling fish has been observed in a wide variety of habitats, including sand, gravel, rock or mud bottoms, and is sometimes found among tree roots, aquatic vegetation and organic debris such as leaf litter and log jams.

Biologists have collected darters in reproductive condition in February and March. Nothing is known of growth, age or food habits. Most darters are small and the harlequin is no exception, reaching a maximum length of about three inches.

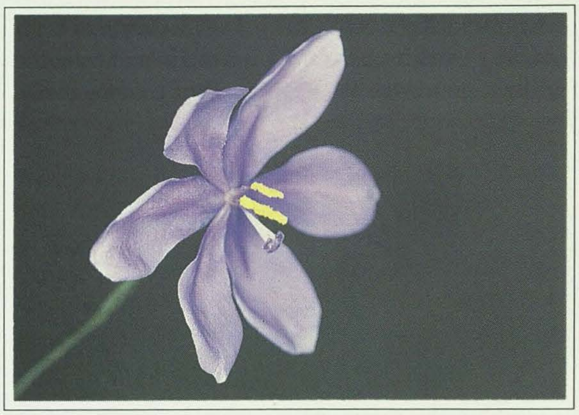
If the harlequin darter was as rare elsewhere as it is in Florida, scientists would be quick to classify it as an endangered or threatened species. The Escambia River has a past history of pollution and even today is not free of industrial and domestic effluent. Continual efforts will be required to ensure water quality in this interstate river system remains good enough to support populations of our enigmatic little clown.

– Gray Bass
Division of Fisheries

ILLUSTRATION BY WENDY ZOMLEFER. REPRINTED FROM *RARE AND ENDANGERED BIOTA OF FLORIDA*, VOL II, FISHES.



GRAY BASS



Bartram's Ixia

By Peggy S. Lantz

A beautiful, cerulean blue-violet flower of the iris family blooms and fades in but a few hours deep in the silence of northeast Florida's moist pine flatwoods.

This perennial flower is called Bartram's ixia, after naturalist William Bartram, who sketched and described it for the first time during his travels through Florida in the 1770s. Today, the plant is listed as endangered by the Florida Department of Agriculture.

Bartram's ixia blooms from April through June, and reportedly has been seen in July and early August. According to Mary Ruth McCracken, a botanical artist who has cultivated, studied and drawn the ixia, its bud begins to show a bit of color the afternoon of the day before it blooms. During the night, she said, the bud expands, comes out of the spathe, angles down toward the horizon where the sun will rise, and begins to swell. The instant the sun's rays strike the bud, the flower pops open. Its bloom, six tepals about 2 to 3 inches across, is pollinated by insects soon after it opens. By 9:30 the flower has reached perfection. Usually by noon it has shriveled into a dark blob that one writer called the "blue button stage."

The plant has a dark brown bulb that not only is unharmed by fire, but seems to thrive when fire keeps down the shrubby undergrowth around it.

Bartram's book, *Travels*, published in 1791, contains only a few words about the flower in the text – 'Behold the azure fields of cerulean Ixea!' At that point in his journeys, he was on the shores of Lake Dexter in Volusia County, though since then, the flower never has been found south of northern Putnam County. Some botanists think he may have reported it at the wrong place in his journey.

Bartram's ixia is found only in a small area in northeast Florida in wet, grassy flatwoods, almost always under scattered slash or longleaf pines and in company with wiregrass. It ought to proliferate, since pine flatwoods are so extensive, but because of logging and tree farming, more than half a dozen plants that inhabit flatwoods, including ixia, are endangered. Ixia has been found lately in roadside ditches instead of in natural seeps.

Fire is beneficial, clearing out the shading shrubs without harming the ixia bulb underground. Ixia stops blooming after several years without fire.

Their distinctive, short-lived blooms make it easier to identify this threatened plant species, since its foliage is so grass-like that it is difficult to discern. The blades do have individual features, however, that can be seen when they are isolated and studied. Years of training as a botanical illustrator make the differences more obvious to McCracken.

"The leaf structure is so distinctive that you can pick it out immediately in a field of grass whether it's blooming or not, as long as it's not completely dormant. If you know the leaf, you can find the plant," she said.

The blades are ribbed, and in cross-section they are distinctive from other irises. The seed pods also are distinctive, and can be found in grass areas after the bloom fades.

The U.S. Fish and Wildlife Service (USFWS) withdrew the ixia from its endangered list in 1990. Recently, the USFWS and the forest industry in Florida have been cooperating in an effort to instigate a search for Bartram's ixia in northeast Florida, but they are barely getting started on the project. Their findings may affect its status on the Federal Endangered Plant List. The Department of Agriculture put Bartram's ixia on its endangered list in 1991.

The USFWS report delisting ixia said it appears that logging and site preparation stimulate flowering and seed production. Some people are concerned about the effect of forestry on the plant, however, because disking of soils destroys many bulbs, even though the ones that survive may be stimulated to bloom.

The distribution of the plant is limited to six counties in Florida, but it is locally abundant.

Many ixia sites are owned by Florida forestry companies. Some of these companies near Jacksonville are considering commercial development of their forest land. One former site of ixia, according to Dr. Daniel B. Ward in *Rare and Endangered Biota of Florida: Plants*, is now an auto junkyard, and other sites have been converted to pasture or agricultural cropland.

The only protected area where Bartram's ixia could be managed is Upper Black Creek, the newly purchased Conservation and Recreation Lands project. This area includes 13,000 acres, with 9,300 more awaiting purchase.

The real concern is the plant's extremely limited range and habitat in all the world, growing only in small areas of northeast Florida. As long as Florida's remaining pinelands survive, Bartram's ixia may be in no more danger than it ever was.

Even development may not be a death knell for the flower, for the ixia is fairly abundant in existing rural subdivisions with grassy understory. But will it continue to send up its ephemeral cerulean bloom if all it has for habitat is someone's back yard? And is that the way we want it?

Peggy S. Lantz is a free-lance writer and editor living in Orlando.

What's In a Name?

The scientific name of Bartram's ixia has changed at least seven times. The nomenclature of plants is difficult and complicated for the layman (and for some botanists) to understand. Even Dr. Richard Wunderlin, professor of botany at University of South Florida, said that Bartram's ixia "seems to be a strange little plant that doesn't fit in well with any family."

Everyone seems to agree, however, that its color is "celestial" and its specific name (species) is either *caelestina* or *coelestina*.

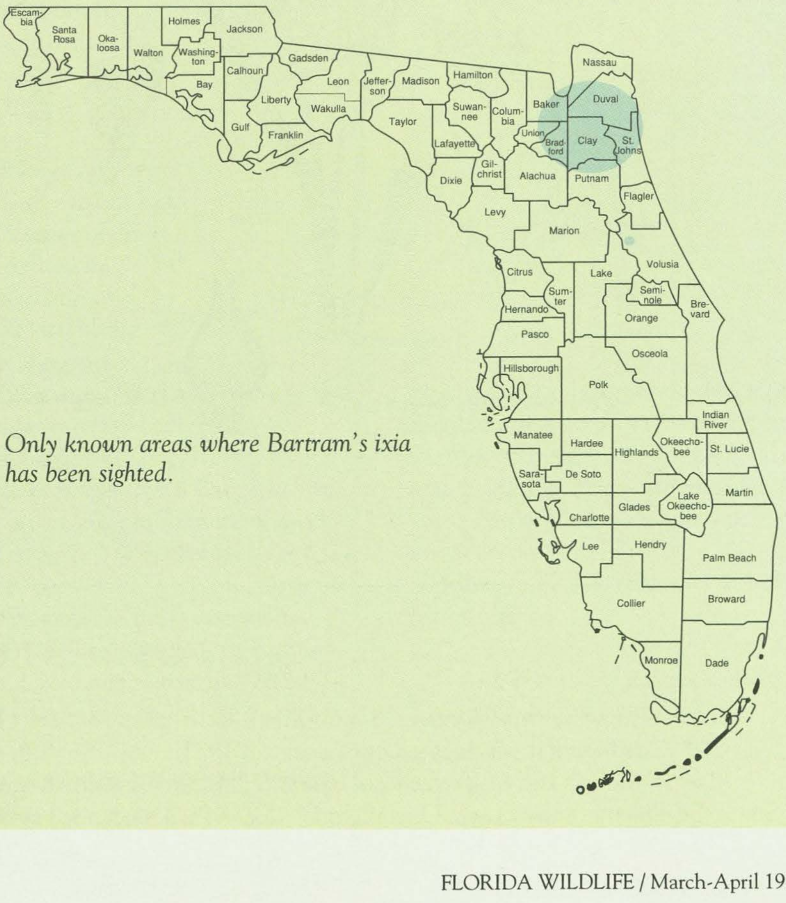
Bartram first called it *Ixea caelestina*, then officially named it *Ixia caelestina*. His description, written in Latin on the sketch, translates to "round, bulbous root; stem: long and round, with sheathing; leaves: linear, lance-shaped, tipped with a short, sharp point; flower: spreading, large and blue."

In 1827, Robert Sweet renamed it *Trichonema caelestina*. Ker Gawler renamed it *Marica caelestina*. In 1835, Thomas Nuttall renamed it *Nemastylis coelestina*. Apparently these botanists studied only collected specimens.

The flower was not described again by a field observer until John Kunkel Small wrote about it in 1931 in his article entitled "Bartram's *Ixia coelestina* rediscovered." Small had changed the spelling to *coelestina* because Bartram spelled it "wrong." Bartram, however, had the right to spell it any way he pleased, since he named it! Later, Small reclassified the plant, assigning it a new name, *Salpingostylis coelestina*.

Then Robin Foster renamed it *Sphenostigma coelestinum* in 1945. And, in 1991, botanists Goldblatt and Henrich finally gave it its "correct" name of *Calydorea caelestina*. However, many citations, including the Commission's official listing of endangered and threatened species, still use Small's 1931 name.

And you thought botanical names were supposed to eliminate all the confusion.



● *Only known areas where Bartram's ixia has been sighted.*

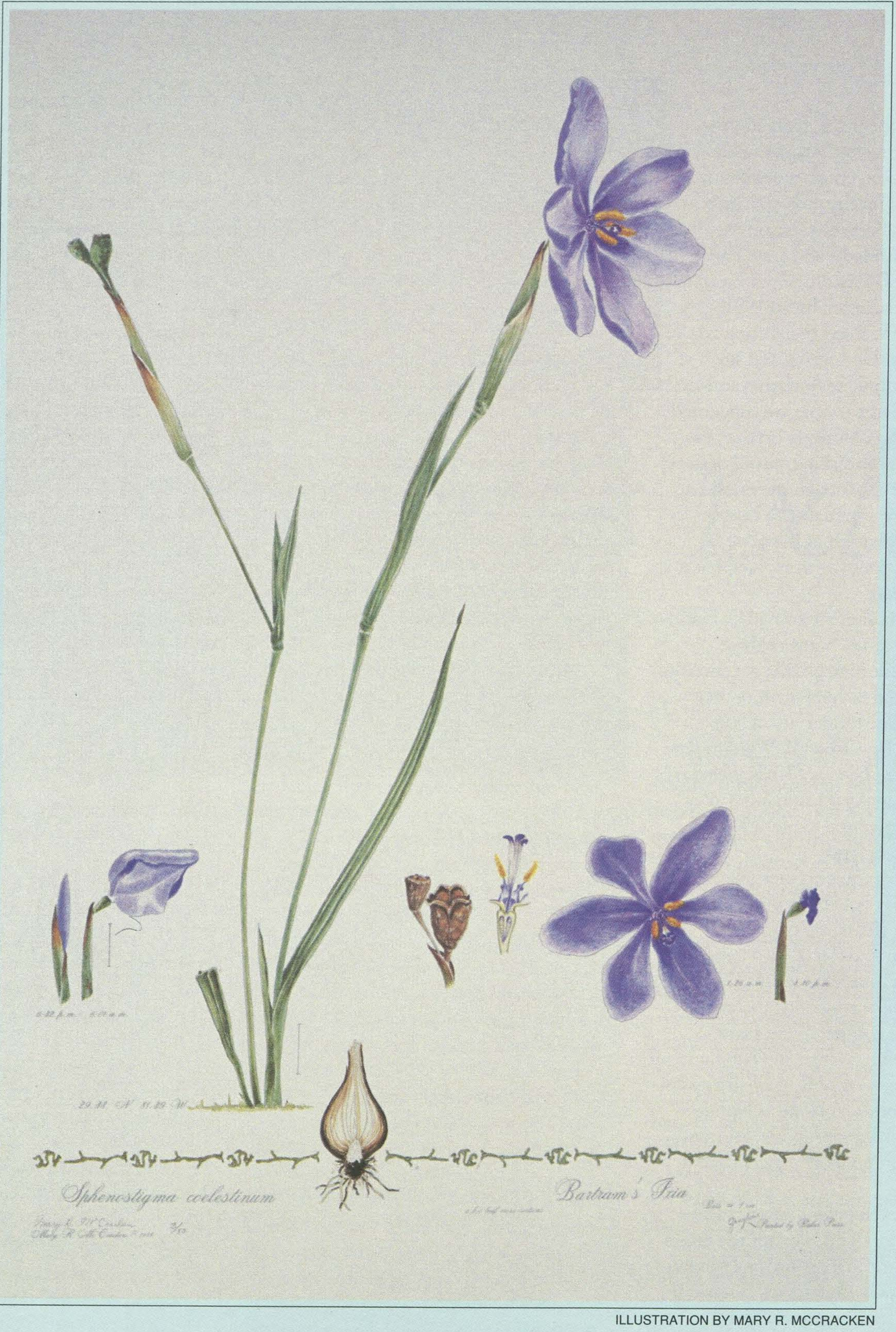


ILLUSTRATION BY MARY R. MCCRACKEN

BARTRAM'S IXIA

Bartram's ixia was first discovered by William Bartram in the late 1700s. The rare, fragile flower was lost sight of for over 200 years before it was located once again in 1931.

Mary R. McCracken is a professional botanist, illustrator and artist, holding degrees in botany and botanical illustration. She is the director of the Lyman Goodnight Center and is a recognized authority on Florida's endangered wildlflowers.

Kissimmee River

Overview

By Scott Hardin

The story of the Kissimmee River reads like a short history of Florida: a magnificent resource explored, contoured, exploited and, more recently, rejuvenated. Once connected by a slowly meandering river, the Kissimmee's upper basin chain of lakes is now riveted together by a series of canals, engineered in the name of flood control. Man has regulated the historical 10-foot annual fluctuation in water levels, troublesome to flood plain residents but a boon to the fishery, to an orderly three feet, occurring at prescribed times.

Starting with lakes Hart and Mary Jane in the southwestern fringe of Orange County, the Kissimmee River creeps into Osceola County following two parallel paths. One works its way through East and West lakes Tohopekaliga, while the other, dotted with no fewer than 10 smaller lakes, winds up in Lake Cypress. Next is Lake Hatchineha, and a turn to the southeast is Lake Kissimmee, at 35,000 acres, the largest lake in the basin. Twenty miles later the river spills unceremoniously into a gutter that shuttles it tamely along to Lake Okeechobee.

Profound effects have come with the transformation of central Florida from Sleepy Hollow to tourist epicenter. Osceola County, which not too long ago had more cows than people, has seen its population increase geometrically from 19,000 in 1960 to over 100,000 today. To the north, Orange County's population has more than doubled since 1960 to nearly 700,000. With the influx, water resources suffered at the hands of conflicting and often less-than-beneficial interests. And with the masses came pollution -- lots of pollution.

Even in the years before Disney, West Lake Tohopekaliga slowly had felt the effects of eutrophication, owing to elimination of natural water level fluctuations. In 1965, the lake was receiving a daily dose of nine million gallons of secondary sewage, the bulk from Shingle Creek, which drains the Orlando area. By 1982, the sewage volume had mushroomed to 24 million gallons each day. The massive inflows of nitrogen and phosphorus smothered the lake with a carpet of muck. As the expansive stands of rooted vegetation suffered, the sport fishery took a nose dive. Although the effect was not as pronounced, downstream lakes did not escape the effects of encroaching development.

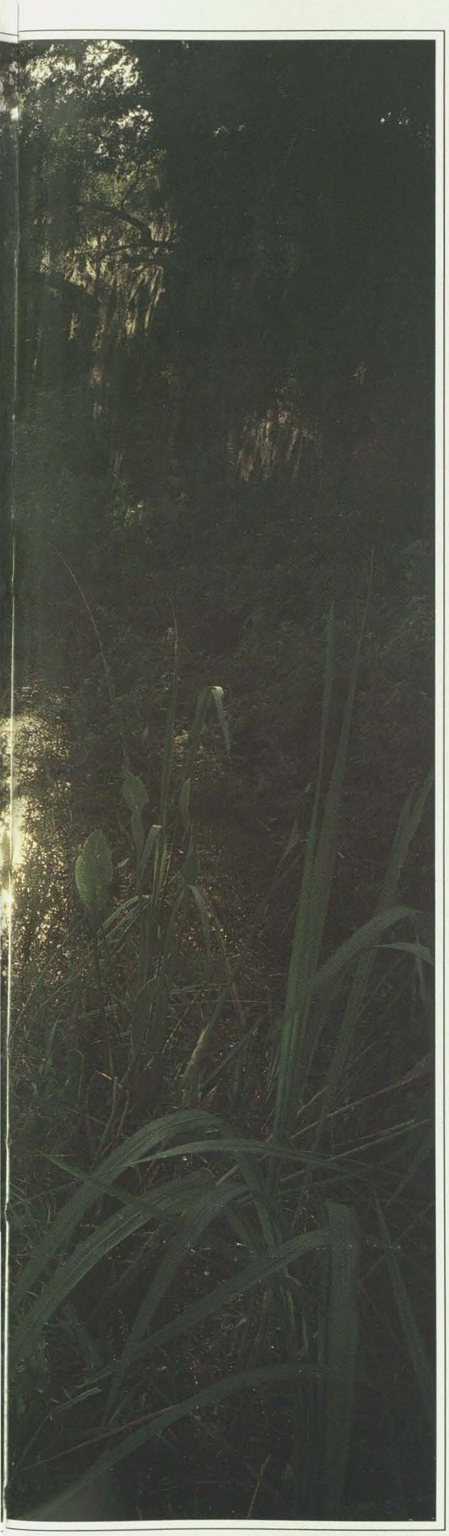
Although all was not well, all was not lost either. A series of drawdowns resulted in spectacular improvement in sport fishing. Consent agreements with local governments will stem the flow of secondarily treated effluent. In a remarkable spirit of cooperation, several state and local agencies collaborated to remove an astonishing amount of muck from West Lake Tohopekaliga (see page 27). More restrictive harvest regulations promise to preserve the quality of bass fishing in the face of increasing fishing pressure. Dechannelization and backfilling of the lower Kissimmee River inches closer to reality.

Growth in the region will continue, tempered, we hope, by increased awareness of the consequences of development. Floridians have begun to contemplate the wisdom of their frantic ditching, diking and draglining. The Kissimmee River basin slowly is being resurrected. If recent progress continues, the chain should continue to be a showcase for Florida fishing.

Scott Hardin is a fisheries biologist in the Commission's Tallahassee office.

Kissimmee Chain of Lakes

By Mark A. Trainor



PAGE 14-15 PHOTOS BY JAMES VALENTINE

Central Florida's Kissimmee Chain of Lakes enjoys a national reputation as a top-notch sport fishery. Successful management efforts by the Game and Fresh Water Fish Commission have sustained these 100,000 acres of water as a popular destination for fishing, hunting and other outdoor recreational opportunities.

Connected by a series of canals, the Kissimmee Chain consists of 20 lakes that flow south to the Kissimmee River. The lakes range in size from 200 to 35,000 acres. Many of the smaller lakes have limited largemouth bass and bream fishing opportunities, primarily during the spring months. Nevertheless, they do provide areas where anglers can get away from crowds, which concentrate on major lakes of the chain. Five of the larger and more popular lakes are found in Osceola County and are profiled in the following pages.

Lake Kissimmee

Lake Kissimmee, at 34,948 acres, or more than 55 square miles, is the third largest lake in Florida. Lakes Okeechobee and George are numbers one and two. The Commission conducted a drawdown in 1977 to revitalize Kissimmee's aquatic habitat and fishery resources. The drawdown helped preserve Kissimmee's reputation as a big bass lake, and over the past decade bass fishing has been extremely productive -- especially in early spring on shiners or plastic worms. Besides bass fishing, the lake provides excellent black crappie and bream fishing. Public access is available off Canoe Creek Road to Joe Overstreet Road on the northeast side of the lake and at the south end of the lake at S.R. 60.

Lake Tohopekaliga

Lake Tohopekaliga (also called Lake Toho, West Toho or West Lake) is about 14 miles long and covers 18,810 acres. Lake Toho was drawn down in 1971, 1979 and 1987 to improve aquatic habitat and stimulate the sport fishery. After each drawdown, Toho offered some of the best trophy largemouth bass fishing in the state. Because of the latest restoration project, Commission fisheries biologists expect angler success rates and bass harvest to continue increasing through 1995. Redear sunfish and black crappie fishing are good in spring, while bluegill fishing is excellent in summer. Toho is a very good fly fishing lake in spring and summer for bass and bluegill. Public access is available on the north end in the city of Kissimmee and on the south end at Southport off S.R. 531.

Lake Hatchineha

Connected to the northwest end of Lake Kissimmee by a canal, this shallow, grassy 6,665-acre lake is excellent for anglers seeking bass and bream. Largemouth bass fishing is good in spring and fall with plastic worms and shiners. ▷

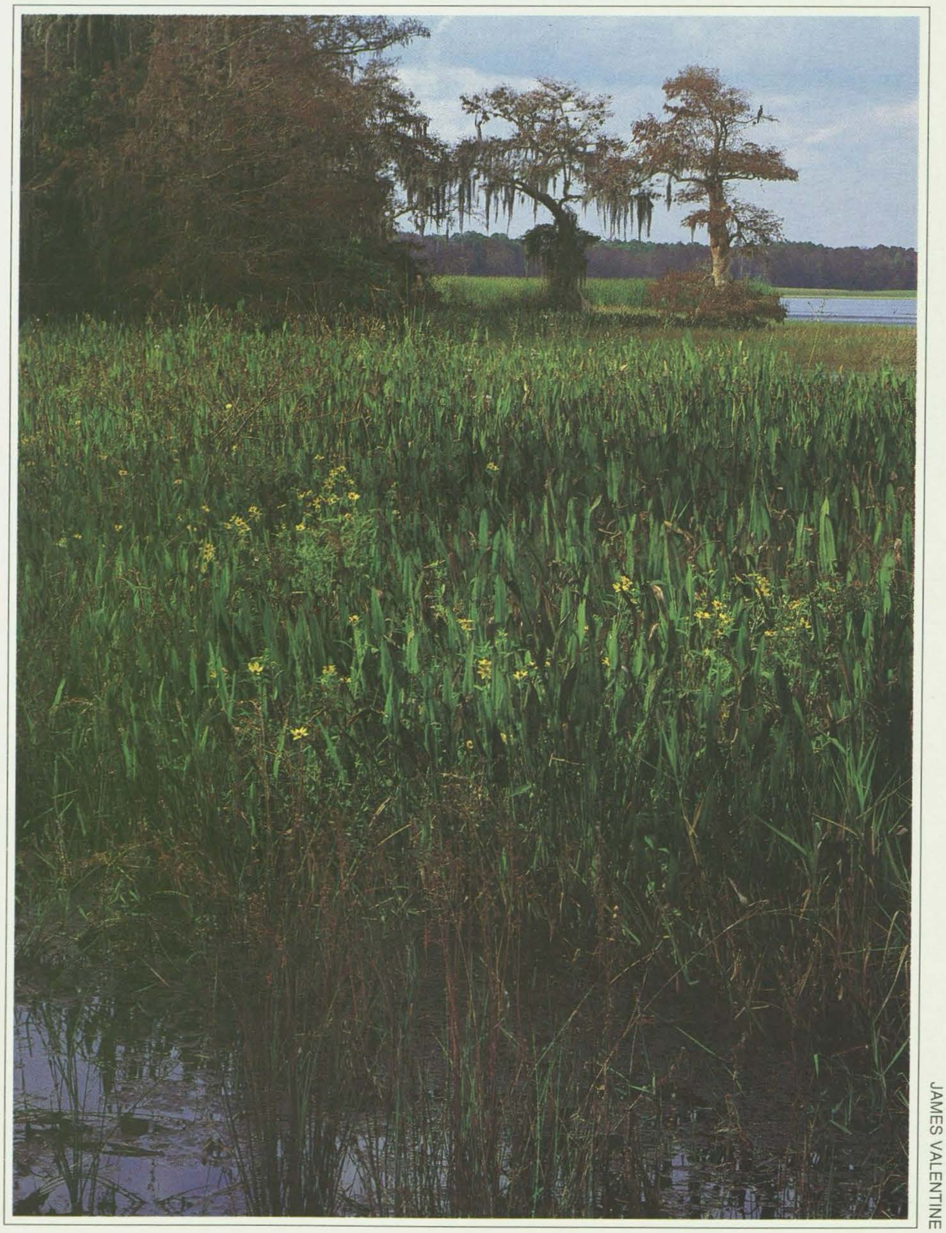
Fishing vegetated areas produces the best results. Bream fishing is best in spring and summer. While waiting for a bite, you can keep an eye out for wildlife along the cypress-lined shore. Wildlife watchers regularly see nesting ospreys, anhingas and other interesting birds. Access is available for a fee at the fish camp off S.R. 542.

East Lake Tohopekaliga

At 11,968 acres, East Lake Tohopekaliga is another large lake that offers excellent bass and black crappie fishing. Because of a 1990 restoration project, Commission fisheries biologists expect the number and size of sport fish to increase greatly through 1995. Restored shoreline areas offer excellent spawning habitat for bass and redear sunfish. The best structure in the lake is very close to shore just off the Boy Scout camp in the northeast corner of the lake. This steep, small hole drops to 18 feet deep, the deepest water in the lake. Fishing deep water and the outside edges of bulrush during summer produces the best bass fishing. Night fishing for bass also is very productive in the summer. Hydrilla and eel-grass in deeper water tend to concentrate good numbers of bass. Also, shell beds located in open water areas are favorite spots for redear sunfish. Public access is available at the fish camp on Boggy Creek Road and Fells Cove off S.R. 530.

Lake Cypress

This 4,097-acre lake offers good largemouth bass fishing during late spring and summer months using shiners, plastic worms and topwater plugs. The lake provides good black crappie fishing during winter months. Most bass are caught in vegetated areas of the lake. The best time to fish for bass is during the late winter and spring, when the South Florida Water Management District opens flood control structures to release water downstream. Public access is available off S.R. 523.

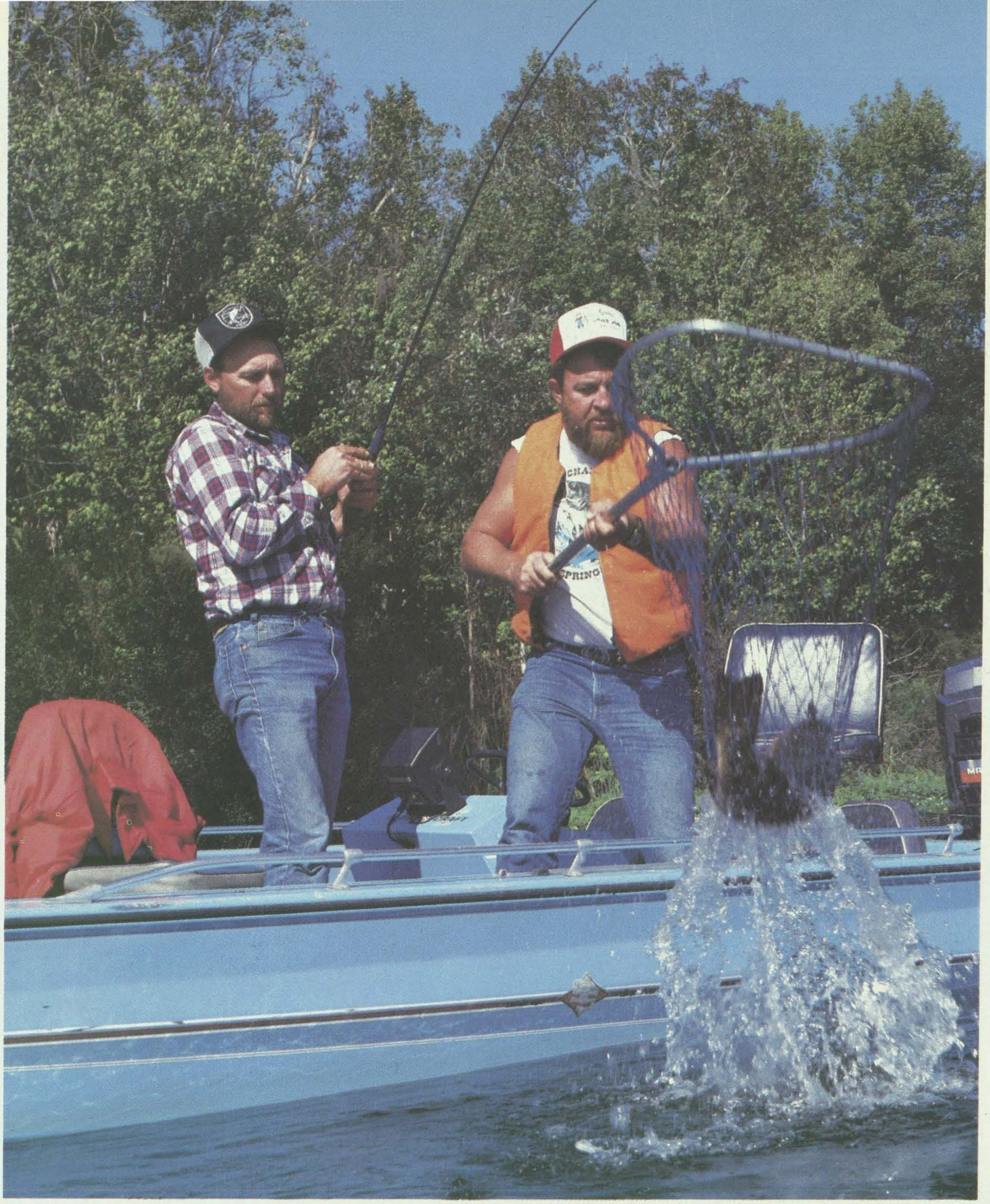


JAMES VALENTINE

HEALTH ADVISORY: The Florida Department of Health and Rehabilitative Services, Department of Environmental Regulation and Game and Fresh Water Fish Commission have issued health advisories urging limited consumption of largemouth bass on four of these lakes (Cypress is the lone exception). The advisories recommend that largemouth bass caught in these lakes should not be eaten more than once per week by adults and not more than once per month by pregnant women, nursing mothers, women who intend to have children and children under 15 years of age. These recommendations are based on a portion of approximately one-half pound of fish.

Mark A. Trainor is a public information specialist in the Commission's Tallahassee office.

DOUG STAMM



Kissimmee Bass Fishing

Text and Photographs by Bob McNally

Every bass angler in America probably has dreamed of catching a heavyweight largemouth, a true "trophy" weighing 8 pounds or more. Anglers regularly land fish of such size from many lakes and rivers throughout Florida, but few consistently give up as many huge bass as the Kissimmee Chain of Lakes, located south of the town of Kissimmee and east of the town of Lake Wales.

There have been many changes in the chain over the past 20 years. Lakeside development has altered some prime fishing areas. Periodic drawdowns and muck-removal operations on some lakes have resulted in boom fishing years.

While all lakes in the chain offer excellent largemouth bass action, the two best and most widely known bass waters in the chain are 34,948-acre Lake Kissimmee and 18,810-acre West Lake Tohopekaliga (also known as "Toho"). Both are shallow and fertile, and they have few peers when it comes to giving up numbers of trophy bass.

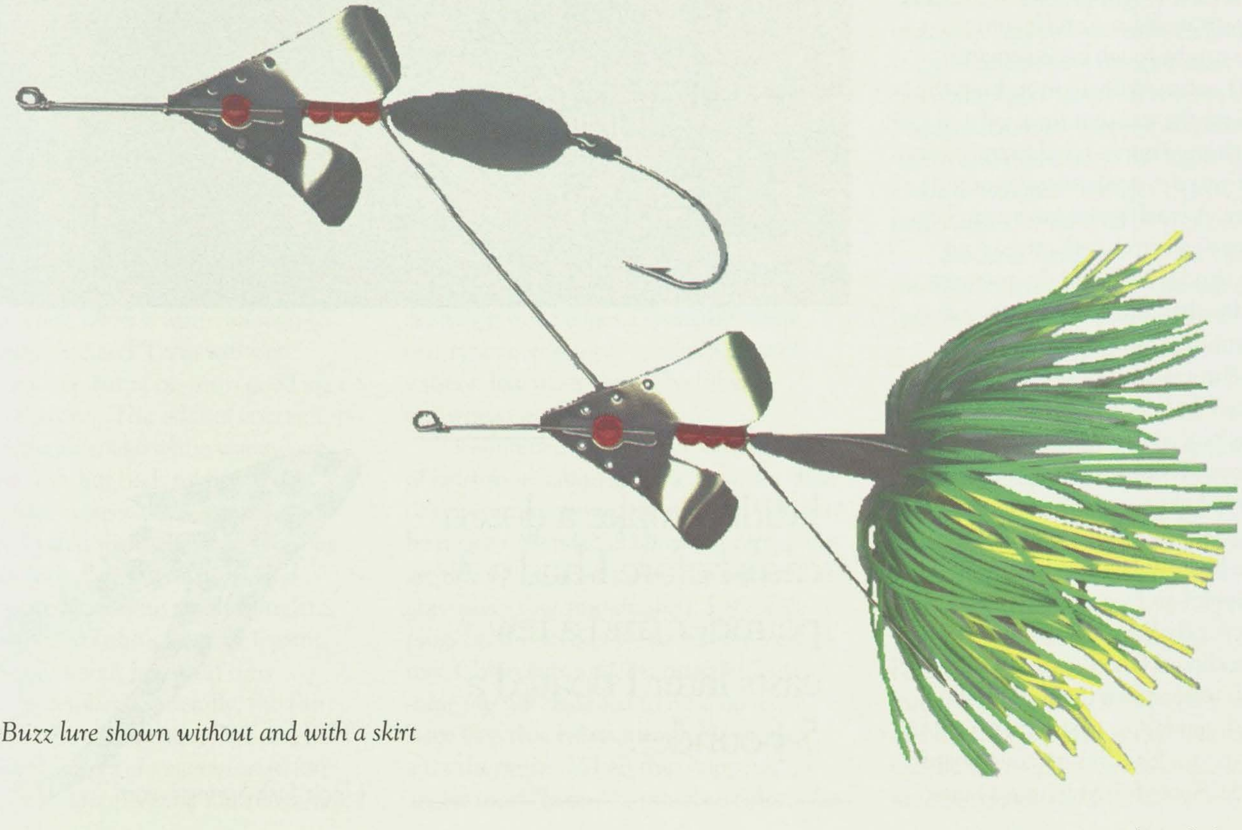
While anglers can catch largemouth bass from Kissimmee and Toho year round, the best fishing under normal conditions is during spring spawning time. Kissimmee/Toho largemouths begin heading for shallow water in late January or early February. Spring fishing usually peaks in early March and ends in June.

The male bass are first to leave their deep-water hangouts and move into shallows, where they build spawning beds on sand bottom or in mats of vegetation. Shortly after the smaller male bass arrive in the spawning areas, larger female bass move in. The big, fat bass weighing 8 pounds or better are females.

Fish are reluctant to hit when they're actually spawning, but angling can be superb just before the bass bed and a week or so after spawning is completed. Bear in mind that not all bass spawn at the same time. It takes several months for this to occur, so fishing is good throughout this period. In spring, Kissimmee/Toho largemouths are found in water 1 to 4 feet deep, and the best fishing often is found near clumps of arrowhead plants.

Kissimmee and Toho are full of aquatic vegetation. And in spring the biggest of the big bass hold in the thick stuff, so weedless lures are a necessity. A wide variety of lures work great for weed-living largemouths on the two lakes, including weedless flippin' jigs with pork rinds, Texas-rigged plastic worms, spoons and some topwater plugs. Spinnerbaits and buzzbaits are especially good for post-spawn bass that are actively chasing forage.

The best spinnerbait/buzzbait I've used on Kissimmee or Toho is a unique and very effective lure called the "Skitter-Buzz" by Lindy/Little Joe Tackle. The Skitter-Buzz is half buzzbait, half spoon, and is one of the most weedless lures ever devised. The forward end of the Skitter-Buzz has a standard buzzbait blade, but the body is flat and spoon-shaped, with a wire arm that deflects weeds from the hook. The lure is most effective when a brightly colored rubber skirt, curly-tail plastic worm or Uncle Josh "Spring Lizard" is ▷



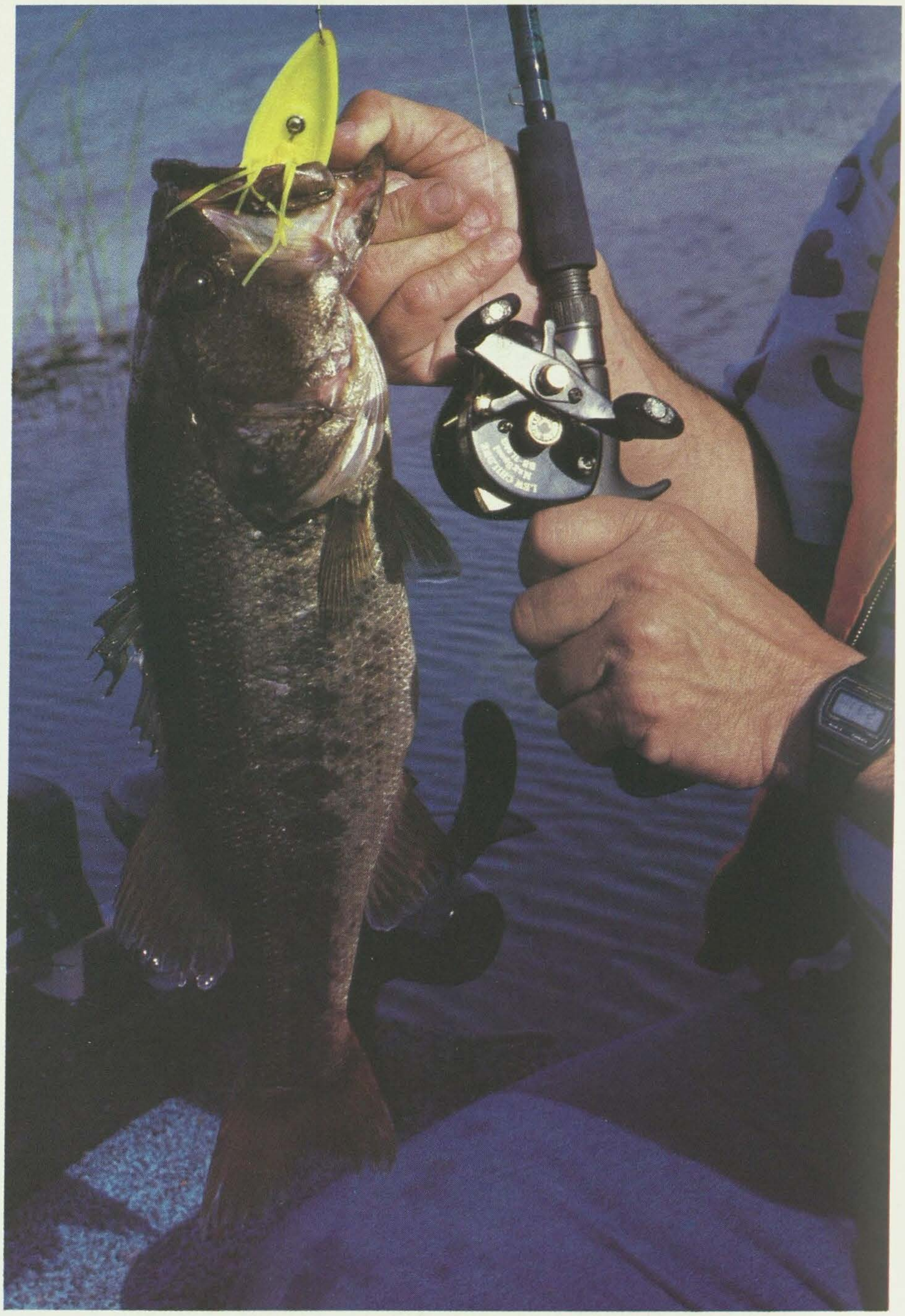
Skitter-Buzz lure shown without and with a skirt attached. The lure can be cast almost anywhere without fouling, and even the slowest retrieves bring it right to the surface, where you can effectively guide it around, over and through the thickest weeds that often hold the heaviest bass. This is an excellent "searching" lure for probing Kissimmee/Toho weed beds, and anglers regularly catch huge bass with it.

The first time I ever fished the Skitter-Buzz on Kissimmee was in early April with friend Dave Kendall of Orlando. Through mid-morning we had fair fishing with jigs and plastic worms, then, about noon, as the shallows warmed, I tied on a gold, quarter-ounce Skitter-Buzz. I tipped the lure with a "Spring Lizard" pork bait and added a large stinger hook to barb short-striking fish. I didn't make a dozen casts before I had a 3-pounder, and a few casts later I boated a 5-pounder. Kendall then switched over to a Skitter-Buzz, and over the next few hours we enjoyed some of the best shallow-water bass action I've ever had on the lake. We caught several dozen bass and had three fish each over 8 pounds, including an 11-pounder Kendall caught. [**Editor's note**: Anglers after Kissimmee's and Toho's big bass should be aware that only one of their five-fish-per-day limit may exceed 22 inches in length.]

Early spring fishing on Kissimmee and Toho can be tough because windy cold fronts occasionally blow in from the still-frigid north, and that turns off largemouths in a hurry. Cold fronts often push bass into the thickest cover or into deep water. At such times lures must be fished very slowly to be effective. And when the wind is high and the temperature low, live bait often is the only sure way of catching Kissimmee/Toho bass.

Live shiners are deadly baits for giant Kissimmee Chain largemouths, especially when they're slow-trolled in shallow areas during spring. One of the biggest bass ever caught from Lake Kissimmee was taken on a 6-inch shiner. The massive bass weighed a healthy 16 pounds.

A popular and very effective way of fishing spring shallows in Kissimmee and Toho is wading. Many fishermen bring chest-high waters with them in their boats, then run fast to where they want to fish, don the waders, and step overboard with tackle. Some fishermen tie a boat



I didn't make a dozen casts before I had a 3-pounder, and a few casts later I boated a 5-pounder.

Uncle Josh Spring Lizard.

bow line around their waist and tow the boat behind as they wade along and cast.

Some Kissimmee/Toho anglers prefer wading because it allows them to approach prime bass areas without the boat noises spooking fish. Also, it gives them better control over large bass hooked in weeds. Sometimes a fisherman simply walks right up to a bass he's hooked and untangles it from the grass. That may not sound like much sport, because a bass wrapped in weeds is a poor adversary. Most of the time, though, Kissimmee/Toho bass fight free of weeds – jumping and running – and give a good account of themselves.

The water often is warm enough to wade Kissimmee and Toho without wearing waders, but boots are a good idea because of snakes. The odds of encountering a venomous snake while wading are remote at best, but high rubber waders afford a little protection. Kissimmee and Toho are loaded with alligators, too, but they pose little threat to anglers, and usually move away from wading anglers.

Kissimmee/Toho's summer bassing season begins about June and runs through September. Generally, the fish move off shallow, spawning flats and hold along outside edges of vegetation in four to 10 feet of water. In early mornings, late afternoons, at night and during overcast weather, largemouths migrate into the weed beds along the shallows. But during midday, bass run deeper. Seasoned Kissimmee/Toho anglers say patches of bulrushes hold most big bass during low-light conditions. Fishermen also take heavy bass from arrowhead patches and big grass beds called "hay fields." Lily pads rarely harbor big bass in summer, perhaps because pads grow on the soft, mucky bottom.

The key to summer fishing on Kissimmee and Toho is to keep moving until locating bass. You must hunt bass during hot weather. Prime areas usually are along weed edges, especially where one type of vegetation meets a second variety, like where bulrushes abut arrowhead plants.

Kissimmee/Toho bass follow schools of baitfish in summer. When you see shad or other minnows on the surface, bass may be nearby. Slender, shallow-running plugs are deadly, especially ones colored gold or gray-silver that imitate shad. Lots of good plugs on the market work well for Kissimmee Chain bass foraging on shad, but some are not designed to hold up to a huge bass that heads into thick weeds after the strike. When that happens, an angler must "horse" or muscle a fish to the boat before it wraps in weeds and breaks free.

The best shad-like plug I've used for big bass recently is the Trader Bay "Sea Dude." This slow-sinking, lipless crankbait has an outstanding swimming action because it's made of highly buoyant teakwood, and it's virtually indestructible. It has stainless steel components, and will not come apart when an angler pulls a 10-pound Kissimmee largemouth away from weeds and moves it to the boat. The Sea Dude is available in many colors, but I prefer silver, white and gold hues.

Another excellent Trader Bay plug that's producing lots of Kissimmee Chain largemouths is the "Florida Shad." This is a 3-inch topwater plug with a tail-spinner and unique "V" shape. It's made from mahogany, will hold up to any bass that swims in the Kissimmee Chain, and has a remarkable, bass-appealing action when twitched across the surface around weed edges and in open, quiet pockets in vegetation.

A 2-inch rain (common April through September) anywhere on the Kissimmee Chain of Lakes will cause runoff water to flow into Lake Kissimmee and Lake Toho. Bass action can be excellent at such times, because largemouths school and feed at the mouths of ▷

small feeder creeks and sloughs. Prime spots for schooling bass following rains in Lake Kissimmee are Jack's Slough at the southeast end, the mouths of small drainage ditches in North Cove at the north end, Polluted Waters and the mouth of Tiger Creek on the lake's west shore.

Other top bassing spots on Lake Kissimmee include the north shoreline east of canal C37 the east shore at Seven Palms, Ox Island and 27 Palms, and the west shore along Philadelphia Point.

Anglers who fish the grassy edges of Lake Kissimmee's islands also can do well. Lemon Point at the north end of Storm Island is a good bet. The north shore of Bird Island and the north and east sides of Brahma Island usually have outstanding bass action. Also, Rock Bed, just off the south end of Brahma Island, frequently gives up big bass.

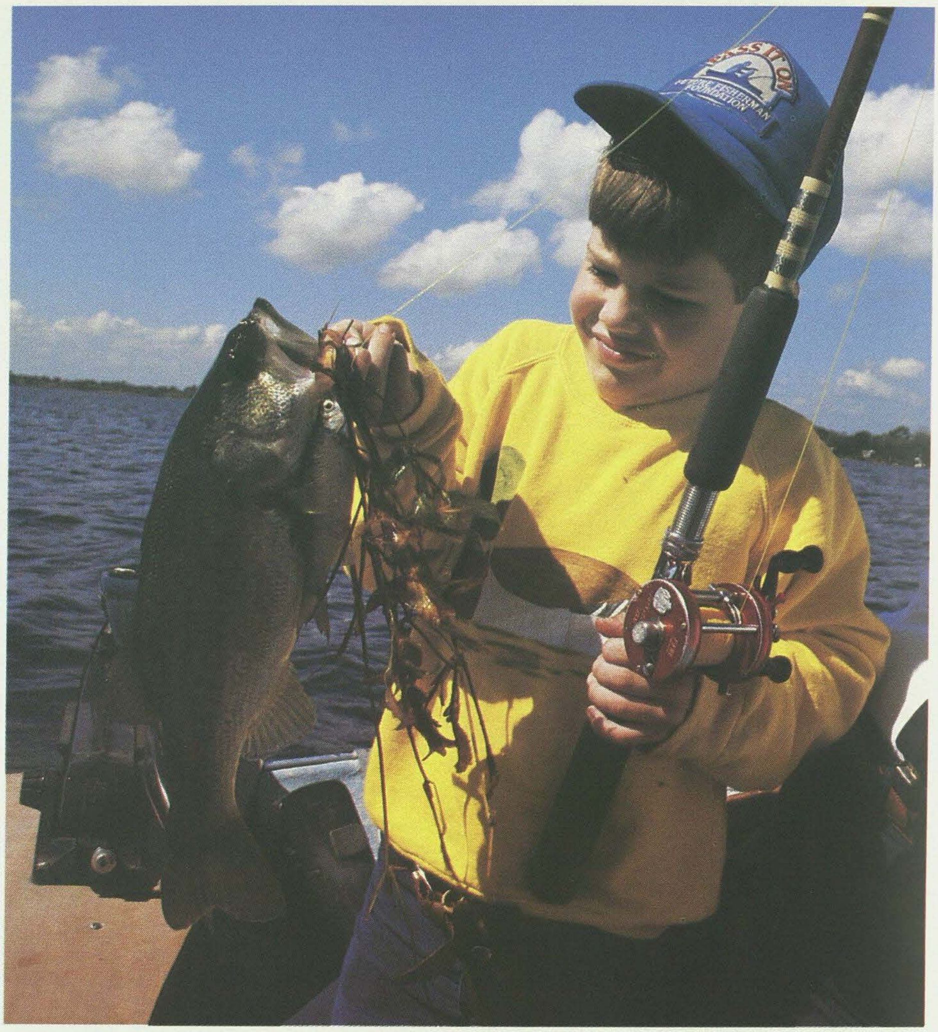
Kissimmee and Toho are tea-colored lakes, averaging 7 or 8 feet deep. They have an abundance of shallow vegetation, which is what most anglers target for their fishing. But the lakes also have quite a bit of deep, open water that's rarely worked properly. Anglers who drift across the lakes, casting weedless jigs, plastic worms and deep running plugs, often take huge bass. One of the best ways to tap the open waters of Kissimmee and Toho is to drift or slow-troll with an electric motor while dragging "Carolina-rigged" plastic worms behind the boat. A swimming type plastic worm is best because its extra action tempts more largemouths. The "Little Mac" is a great swimming worm for Carolina-rig fishing, especially magnum 8-inch models in black or brown. The "Little Mac" is a weedless plastic worm molded in a unique "Z" shape so that it spins in a wide arc when fished. It drives Kissimmee Chain bass wild.

Fishermen who troll open water with live shiners or speed-troll with deep-going plugs also frequently locate schools of stout largemouths on both lakes. Top places to try open-water fishing on Lake Kissimmee are north and east of Philadelphia Point, between Brahma Island and Bird Island, and southeast of Brahma Island. On West Lake Tohopekaliga, the north end has a very deep hole near the Boy Scout camp that yields big fish to trollers, and some of the deeper holes to 10 feet on the west-central side and in the south-central end are good.

Kissimmee and Toho have many fishing camps scattered around their shores. Contact the Kissimmee/Osceola County Chamber of Commerce at 320 E. Monument Ave., Kissimmee, FL 34741, (407) 847-3174 for a list.

While Kissimmee and Toho are only two of Florida's great bass lakes, they are among the best-known waters in America for consistently giving up big fish. The key word here is *consistently*. Hot bass lakes come and go, but for decades these two Kissimmee Chain lakes have been prime for massive bigmouths. And there's no reason to believe they won't continue in their big fish ways for many more years to come.

Bob McNally is a free-lance writer/photographer and frequent contributor to FLORIDA WILDLIFE.



Fishing Lure Sources

The following companies can tell you the nearest dealer that sells the main lures mentioned in this article.

Uncle Josh Bait Company
P.O. Box 130
Fort Atkinson, WI 53538-0130
(414) 563-2491

Lindy/Little Joe, Inc.
P.O. Box C
Brainerd, MN 56401
(218) 829-1714

Panfishing the Kissimmee Chain

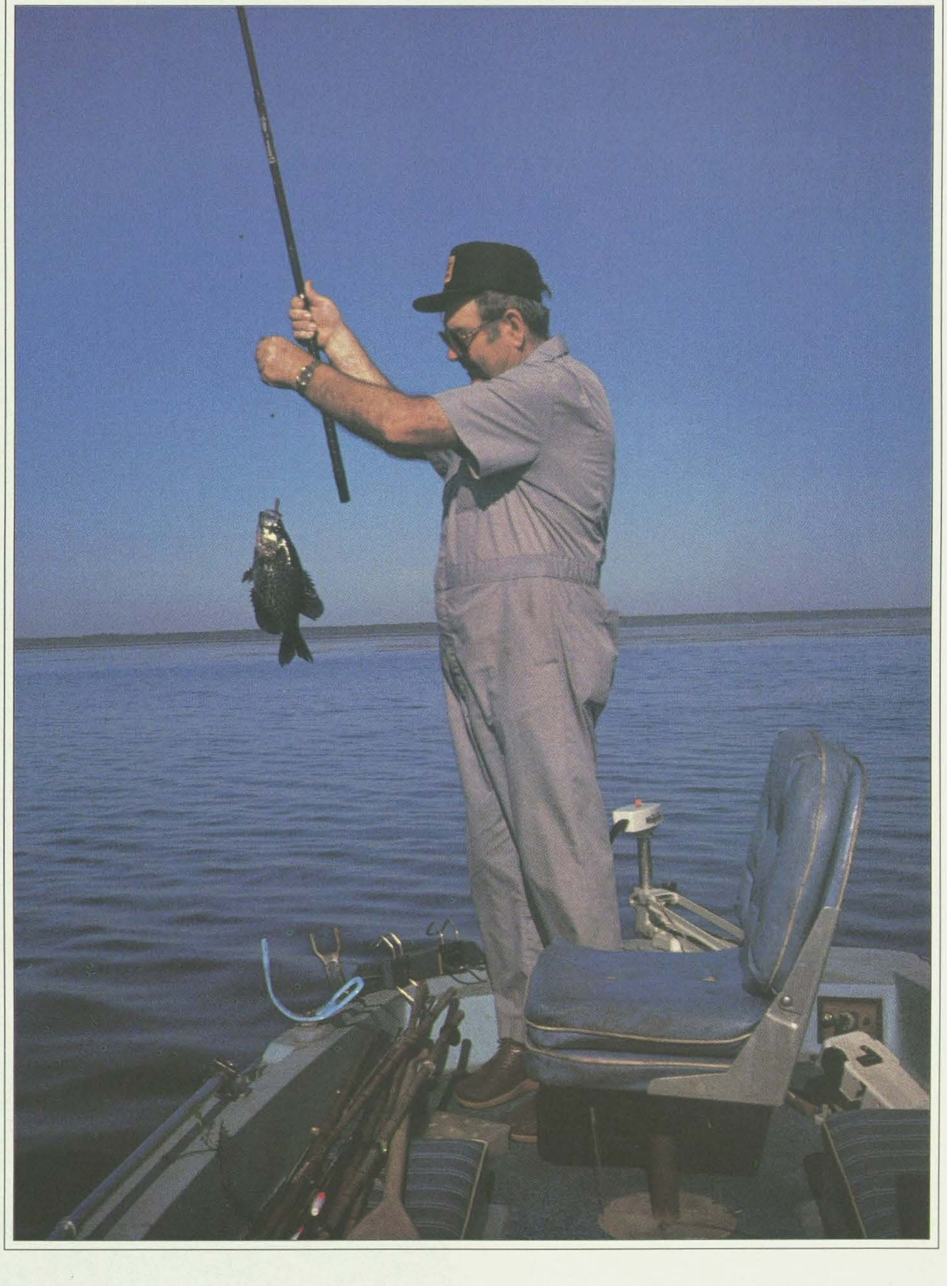
Text and Photographs
by Horace Carter

Tiny wavelets slapped against the boat as I motored toward my fishing spot one cloudless April morning. I cut the engine and anchored in the fringe of the saw grass, half a football field from the marshy shoreline. It was panfishing time, and the bluegills, shellcrackers and speckled perch patrolled this grass, foraging for minnows and insects. It was a choice spot for even the most unsophisticated anglers to put a mess of gourmet freshwater panfish in the cooler.

I was about to wet my hook in the semi-clear waters of Lake Kissimmee. This lake is headwaters of the Kissimmee Chain of Lakes, which flow into the Kissimmee River and ultimately, Lake Okeechobee. One would wonder why bream like this particular spot over similar desirable habitat. But anglers tend to fish where they have had success before, and I have carried home some fine stringers from this honey hole near the mouth of Tiger Creek on many occasions.

Unwrapping my 6-pound-test line from around a 12-foot telescopic pole, I set my tiny cork four feet above a single, small, BB-lead shot and No. 4 hook, and adjusted it to dangle enticingly a foot off the bottom. I had gathered a mess of grass shrimp earlier by dragging a fine-mesh dip net in the coontail patches along the shallows near some spatterdock lilies. Impaling one on a hook, I was all set.

When I flipped the bait into open water a few feet from the grass line, I fully expected the cork to pop under momentarily. It didn't. ▷



There are no absolutes in fishing. I'd anchored here many times and caught limits of fine shellcrackers, bluegills and even an occasional speckled perch on the identical humble bait and tackle. Today they wouldn't even smell my tasty grass shrimp.

A half-hour later, still skunked, I moved upstream near the river mouth where an old native had anchored his homemade, plywood bateau and set two tired cane poles. They must have been tired because the last four feet were permanently bowed. Many of these natives are astute panfishermen. This must be a good spot, I surmised, so I anchored a respectable distance away and dropped my bait back into the water.

After a few minutes, the old man dragged in a gripper-size shellcracker that fought him all the way to the gunnels. There was an instant replay on his other line, too, and a fine bluegill rattled on the deck. Over the next half-hour, he caught a dozen bream big enough to write home about. I hadn't had a nibble. I was frustrated.

"Mister, what are you using for bait?" I asked rather timidly. After all, I was a veteran fisherman who was supposed to know what he was doing. I had been a panfish guide for years.

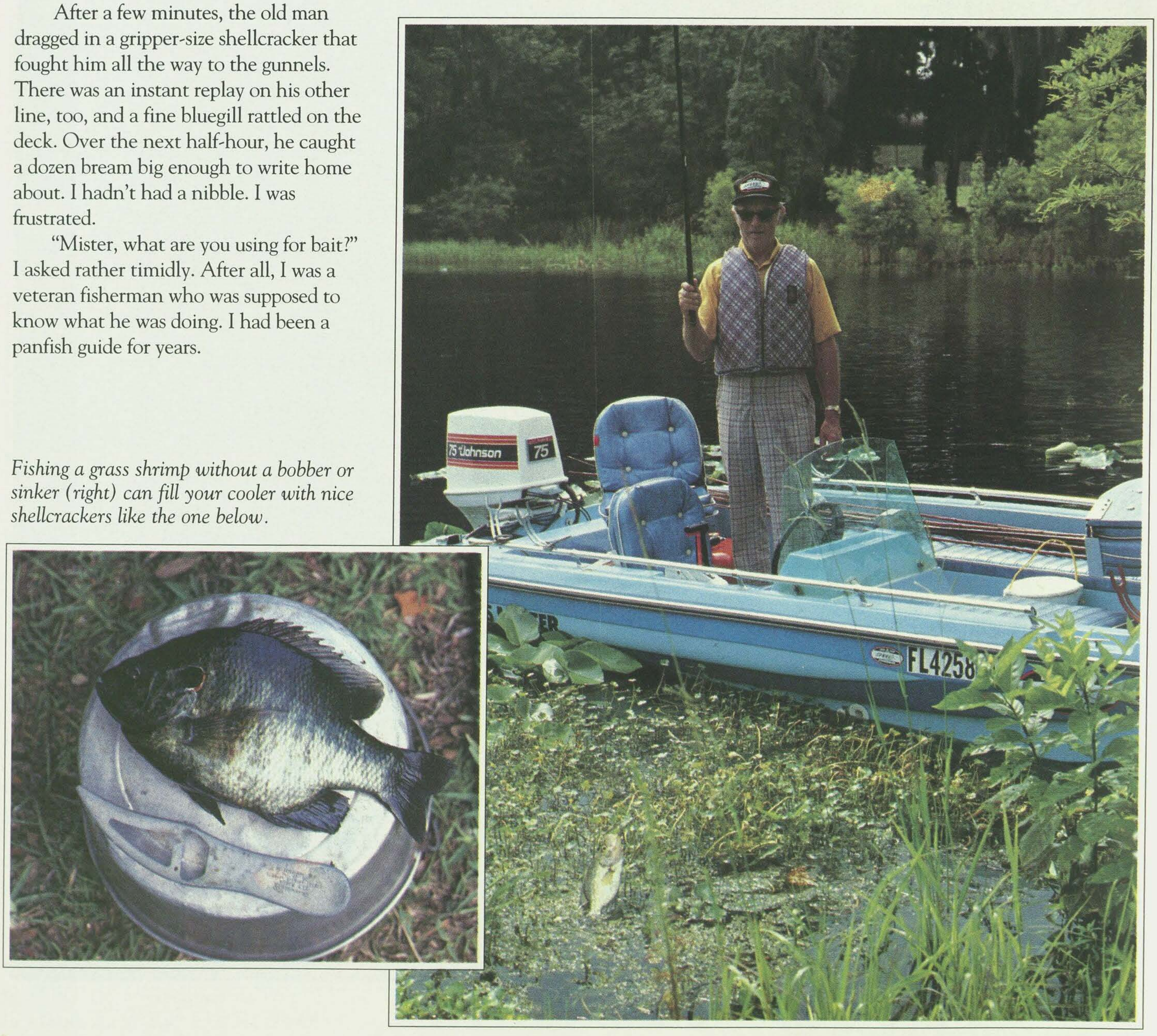
The bewhiskered old Cracker puffed again on his corncob pipe and looked at me for the first time.

"Let me see your line," he said, almost menacingly. I lifted it out of the water, the grass shrimp still kicking and squirming.

"You got the right bait, but you ain't fishing it right. Take the cork off the line, and throw that lead shot away. Just fish the shrimp near the bottom, and you'll catch fish. They make corks for bottle stoppers and lead for plumbers. They don't make 'em for fishing," he said. I felt like I had just heard a message from Above.

"They make corks for bottle stoppers and lead for plumbers. They don't make 'em for fishing," he said.

Fishing a grass shrimp without a bobber or sinker (right) can fill your cooler with nice shellcrackers like the one below.



The Kissimmee Chain of Lakes is a panfishing bonanza for both locals and tourists.

I tore off the bobber, unsnapped the lead and let my hooked shrimp flit slowly to the bottom. Bingo! I came in with a bream so big I had to hold it against my chest to dislodge the hook. By noon I had two dozen fat panfish, a mixed bag of shellcrackers, bluegills and two fine, slab-size speckled perch.

It's been 25 years since that old codger unlocked that fishing secret, and it has worked for me ever since, not only in Lake Kissimmee, but in Lake Tohopekaliga, the smaller lakes along the Kissimmee Chain and in the numerous manmade canals, creeks and sloughs. Learning to catch more fish with the "nothing pole," one with only a hook on the line, was a revelation. It works wherever there are panfish, and there are few areas more prolific than the Kissimmee Chain.

It's easy to reach these prime fishing lakes -- they're just west of the Florida Turnpike and a hop and skip off U.S. 441 at the city of Kissimmee, as well as U.S. 17/92 and S.R. 531 and 525. S.R. 60 crosses the south end of Lake Kissimmee.

There are three operating fish camps and six paved boat ramps on Lake Toho. You'll find three fish camps at the south end of Lake Kissimmee and a public boat ramp off S.R. 60. At the northeast corner is a public ramp with a concessionaire. Several other fish camps dot the river connecting these lakes.

In general, Kissimmee lakes and canals are shallow with sandy bottoms and scattered bonnets everywhere. It makes for great panfish habitat, whether in the big lakes, the smaller ones or the canals and creeks. Planned drawdowns of the lake by the Game and Fresh Water Fish Commission in recent years greatly expanded the population of desirable habitat for panfish. Although anglers often complained during the low water eras, generally the experiments have been successful and brought plaudits from the masses.

The Kissimmee Chain is a panfishing bonanza for natives and tourists. Just remember to leave the corks and lead to the pharmacists and plumbers, and fish with the humblest of tackle. The nothing pole will improve your chances of having fish for dinner.

When he's not out fishing, Horace Carter is a free-lance writer/photographer who lives in Hawthorne.

Kissimmee Zingers

By Ed Moyer

As the March moon becomes full, it's time to think about fishing for shellcrackers on the Kissimmee Chain of Lakes. Pull out that old pair of waders, check out your ultralight fishing gear, and get ready for the first week of warm-weather angling.

When the moon is full, these scrappy panfish will spawn in shallow, sparsely vegetated habitat with a sandy bottom. Generally, panfish anglers on Lake Kissimmee search for shellcracker beds along the shoreline in the stands of Kissimmee grass, bulrush or eel-grass.

Anglers on Lake Kissimmee should look for bedding sites along the northern and eastern shores of Brahma Island, inside boat trails from Philadelphia Point south to Polluted Waters on the western shore, and south of 27 Palms on the eastern shore.

Most folks fish out of boats, and a cluster of boats, with anglers toting cane poles generally marks a shellcracker bed. But don't rule out wade-fishing. After locating a concentration of shellcrackers, the real fishing fun begins when you jump into the water. First, load your pockets with a generous supply of small hooks, bobbers and split shot. Then slip a stringer, a pair of needle-nose pliers and several cups of red wigglers into the front pouch of your waders. Now slide overboard and head toward the shellcracker bed.

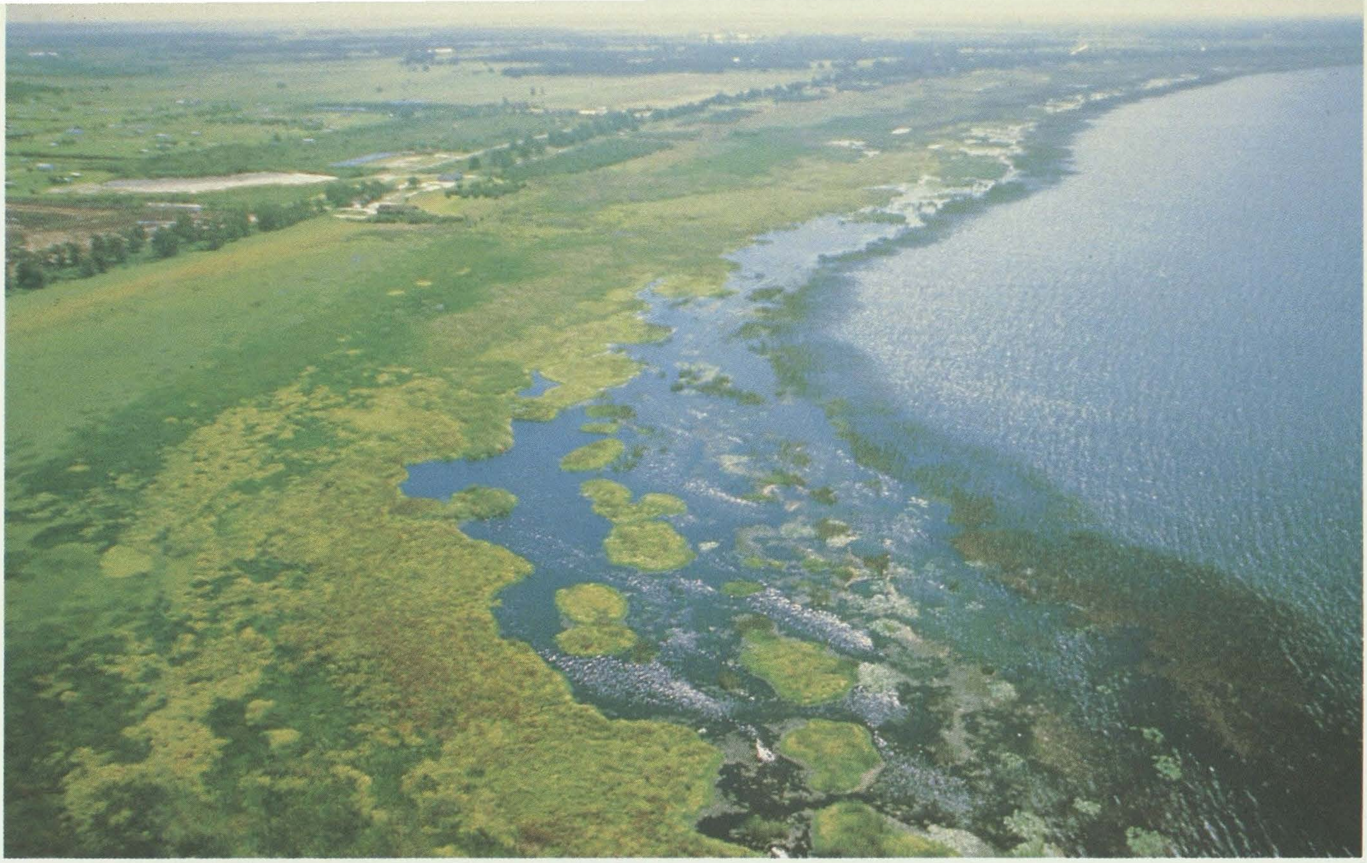
Place your bobber up the line so that your bait floats just above the bottom, and thread a plump red wiggler onto your hook. Do not wade into the bedding area; stay back so that a medium-length cast will put your bait in open spots around sparse vegetation.

Generally, it will take 10 or 15 minutes after your arrival for the fish to settle back into the area. Once the action begins, it's hard to keep a hook in the water. Larger fish provide plenty of fight, and your drag should emit that familiar "zinging" sound as the shellcracker races through the vegetation. A three-quarter-pound shellcracker can provide lots of excitement when caught on light tackle. You can catch several fish from the same spot, but watch the surface for moving vegetation caused by shellcrackers swimming in shallow water.

As the action picks up, you'll stay busy rigging tackle, stringing fish and baiting hooks. It can be hectic, but well worth the effort, because fried shellcrackers sure taste good with taters and slaw.

DOUG STAMM

Redear Sunfish



Lake Tohopekaliga
Restoration Projects

Text and Photographs by Ed Moyer

The lure of the Florida sunshine brought throngs of new residents to our state in the late 1950s, and thousands settled into the cities and towns along the upper Kissimmee River in Osceola County. As these municipalities grew, so did their output of treated sewage, which ended up in Lake Tohopekaliga.

This wastewater contained excessive nutrients that were detrimental to the lake's habitat and sport fish populations. Although biologists from the Game and Fresh Water Fish Commission began pointing this out in the early '70s, by 1986, Lake Toho was receiving an estimated 30 million gallons of poorly treated sewage effluent every day.

Under natural conditions, the water level in the 18,810-acre lake would fluctuate an average of four feet a year, sometimes more than 10 feet. This natural cycle of flooding and drying improved conditions and sport fish populations and the forage fish on which they prey. But in 1964, the U.S. Army Corps of Engineers enacted flood-control measures that negatively affected aquatic habitat. By opening or closing a series of locks, the Corps manipulated the water level so that it never varied more than three feet a year, not enough to mimic the natural fluctuations beneficial to the fishery.

In 1971, the Commission enacted an experimental extreme drawdown program. This restoration technique called for draining enough water every eight years to expose approximately 45 percent of the lake's bottom, offsetting the effects of excessive nutrient-loading and limited lake level fluctuation.

While the 1971 drawdown succeeded in improving habitat conditions for fish, biologists identified a potentially destructive phenomenon. The combination of excessive amounts of nutrients and strictly regulated water levels contributed to the build-up of an organic sediment berm around the shoreline of Lake Toho.

Available nutrients encouraged rapid growth of nuisance plant communities, which produced large amounts of organic litter. Restricted water-level fluctuation kept this material from drying up and dispersing. As the organic debris increased in both depth and areal coverage, it formed a new shoreline covering or isolating the productive shallow-water habitat landward of the berm. When biologists drew down the lake again in 1979 they saw that the organic berm was expanding rapidly throughout the lake's ▷

Heavy equipment operators removed 222,500 cubic yards of muck from the bottom of Lake Toho.

littoral zone. This problem would have to be addressed.

During the ensuing years, plans were made for a muck-removal project to take place during the 1987 extreme drawdown. A maximum-low-water period of at least three months was scheduled to begin March 1. Funding for the project came from fines and settlement fees paid to the Florida Department of Environmental Regulation's Pollution Recovery Trust Fund ($246,705) and resort tax revenues from the Osceola County Tourist Development Council ($200,000). South Florida Water Management District (SFWMD) and Osceola County personnel and equipment were contracted to assist in the conservation project.

In preparation, Commission biologists assisted SFWMD and Osceola County in planning and implementing their operations. Site selection, areas to be restored and estimates for volume of material to be removed were compiled by Commission personnel. Agreements between the Commission and area cattle ranchers provided no-cost upland soil-disposal sites along six miles of shoreline on the south end of the lake for muck removed by SFWMD personnel. The ranchers took the muck, intending to use it as a soil-enricher. This idea was never tested, and the muck piles eventually dried up and compacted.

Muck-removal operations began ahead of schedule on Feb. 20, 1987, when the lake bottom had dried sufficiently to allow movement of trucks and heavy equipment across the exposed lake bed to adjacent upland disposal areas. SFWMD personnel used bulldozers, road graders, front-end loaders and dump trucks to scrape, load and haul muck from the exposed lake bottom. Osceola County leased dump trucks and drivers, while its employees operated front-end loaders and road graders to complete muck-removal operations.

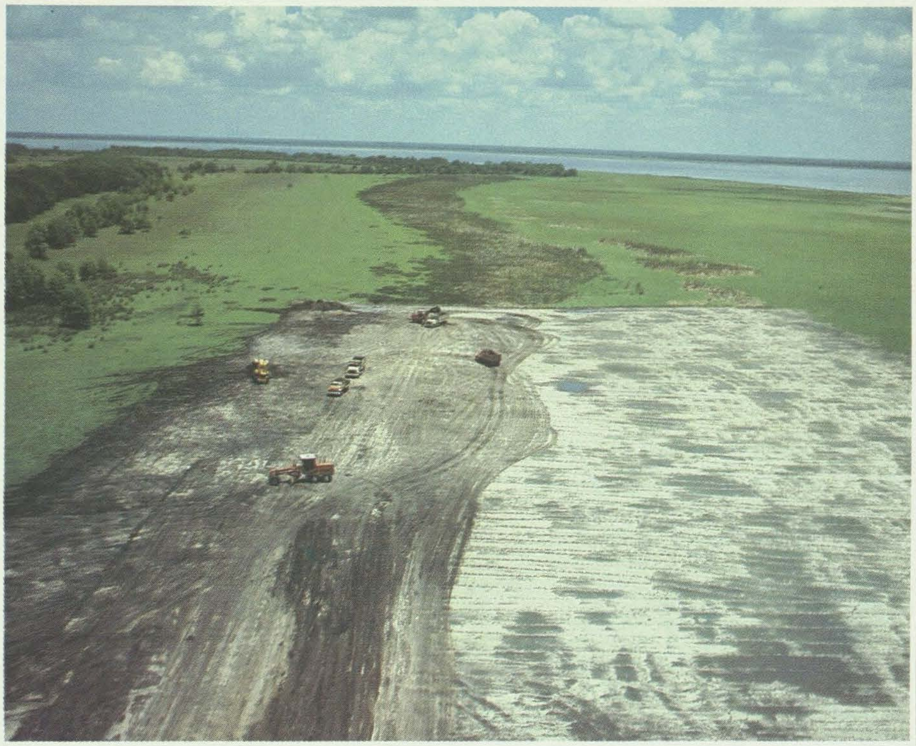
Surprisingly, the inter-agency effort cost less than the lowest bid from private contractors. Additionally, having Commission field personnel handle day-to-day communications enhanced project coordination. All government agencies involved were dedicated to restoring the resource and attentive to eliminating delays in decision-making. Also, Osceola County and SFWMD personnel knew the local landowners, which minimized problems of crossing private land and temporary storage of heavy equipment.

The muck-removal project eliminated 222,500 cubic yards of organic material and associated nutrients from the lake bottom, thus retarding growth of undesirable plants. Because the project was conducted during an extreme drawdown, the restored lake bottom was exposed to air and sunlight. This caused seeds in the remaining sediments to germinate, establishing new, beneficial plant communities as the lake reflooded. The long-term benefits of muck removal included increased numbers of sport fish and greater diversity and abundance of macroinvertebrates and shallow-water fish that sport fish use as forage.

During the same time frame, diligent efforts by various state, federal and local agencies and concerned citizens were instrumental in having no-discharge rulings adopted and enforced by state and federal regulatory agencies. By 1988, discharges of approximately 22 million gallons per day of treated effluent into Lake Tohopekaliga had ceased. Instead, this "gray water" was diverted for irrigation at citrus groves. Compared to data collected in 1980, phosphorus concentrations in the lake had decreased sharply by 1988. At the south end of the lake, recorded levels of chlorophyll a, a pigment found in algae, which usually appears blue-green, declined 75 percent. This meant clearer water, and local anglers immediately noticed a decrease in algae blooms year round.

The information gathered from this restoration program was used to plan and implement a larger, more extensive restoration effort on East Lake Tohopekaliga in 1990. Planning has begun for a similar project on Lake Kissimmee in 1994, and restoration biologists will implement a variety of techniques to help maintain and enhance desirable aquatic habitat on the Kissimmee Chain of Lakes.

Ed Moyer is a fisheries biologist with the Commission's Lake-Restoration Project in Kissimmee.



After Lake Tohopekaliga was drawn down, heavy equipment moved in to remove accumulated muck.

Once the muck was removed, the lake was reflooded.

Melaleuca Mania

By Judy Ludlow

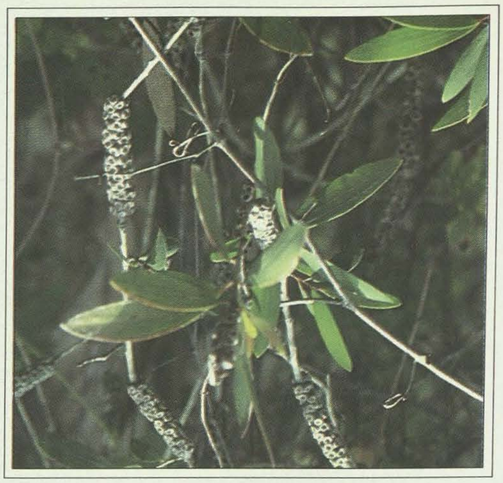
In May 1992, personnel from the Game and Fresh Water Fish Commission, South Florida Water Management District and Department of Natural Resources armed themselves with machetes and herbicides. Their mission: treat approximately 3,000 melaleuca trees and 62,000 seedlings. Their field of battle: lakes Tohopekaliga, East Tohopekaliga, Gentry, Hart, Lizzie and Alligator Lake – all part of the Kissimmee Chain of Lakes.

This coordinated effort was a result of planning by the Upper Kissimmee River Aquatic Plant Management Interagency Group. The group believes that maintenance control (lowest possible levels) of melaleuca in these affected public waters is possible. Melaleuca is native to Australia and was introduced into south Florida in the early 1900s. Since then, it has invaded many thousands of wetland acres in Florida. The occasional spell of freezing weather in central Florida has spared it from the speed of proliferation seen in south Florida. Consequently, it may be easier to maintain control of melaleuca in central Florida, provided treatments are done on a continual basis. In addition to the Kissimmee River Chain of Lakes, melaleuca "clean ups," organized primarily by lakefront homeowners, are underway in the Conway and Butler chains in Orlando.

If you would like more information about melaleuca identification, ecology or control, or would like information on how to organize a melaleuca "clean up," contact Ed Harris, DNR, Bureau of Aquatic Plants, (407) 423-6037.

Melaleuca

By Richard E. Cauffiel



Melaleuca seed pods.

The melaleuca story sounds like one of those bad horror movies from the 1950s – the creature that would not die. Anything you did to destroy it only made it multiply.

The reign of melaleuca terror began when the tree was imported from Australia around 1900, a time when the Everglades were thought to serve no useful purpose. The tree was known to posses a mammoth thirst, making it a natural choice for draining the Everglades to make the land habitable for people and vegetables instead of alligators.

But, in its native Australia, there were natural controls to keep melaleuca in check. Conditions were different in south Florida, so the tree took over like a bully. It grew unchecked and soon began choking out native vegetation, without serving any apparent benefit to wildlife. By 1980, melaleuca trees had infested 1.5 million acres of the Everglades. Ongoing surveys show that the melaleuca encroachment continues throughout the Everglades, although the exact number of acres infested is not known.

The melaleuca has proved to be extremely hardy. When flowering, it stores large quantities of seeds in "capsules" and accumulates them throughout its life. A single mature tree can hold millions of seeds. Disturbances such as fire, lightning, drought, herbicide application, or even cutting the tree cause the seeds to be released. The prolific seeds immediately begin to germinate on the

Melaleuca tree.

PAGE 30-32 PHOTOS BY FRANCOIS B. LAROCHE, SFWMD

E.P. CAUFFIEL, CAUFFIEL ASSOCIATES

A treated melaleuca.

ground. Biologists now fear that seeds were widely dispersed when Hurricane Andrew's winds devastated south Florida last August.

Throughout the 1980s biologists with the Arthur R. Marshall Loxahatchee National Wildlife Refuge experimented with various methods of treatment to control, if not eradicate, the melaleuca infestation. Approximately 20,000 acres of the refuge are considered to be moderately to heavily infested with melaleuca.

With grants from the South Florida Water Management District, Department of Environmental Regulation and the U.S. Fish and Wildlife Service, the refuge hired a team to work full time on the control of exotic plants – mainly melaleuca. Under the overall direction of Dr. Mark D. Maffei, the four-member team began its work in April 1992 to control melaleuca within the refuge. To date, the team has removed or killed 200,000 melaleuca trees and still is involved with the eradication program, which includes controlling the Australian pine and the Brazilian pepper, both exotic pest plants.

The team targets single trees as well as the large stands of melaleuca. They use three techniques to destroy the trees. The most widely used method is called "hack and squirt." A team member uses a hatchet to cut a band in the tree's outer bark. This wide band exposes the inner core or cambium, which is then cut to hold a concentration of herbicide. The herbicide Arsenal, an inhibitor of the amino acid synthesis, is squirted around this exposed core. This chemical, according to Maffei, is the most effective at killing melaleuca trees when applied using the hack-and-squirt method. Within two weeks after the Arsenal application, the leaves begin to turn brown, and in about six weeks the tree is completely defoliated and dead.

The second method uses the herbicide Spike, an inhibitor of photosynthesis. According to Maffei, Spike "is reported to maintain activity in the soil for three years following treatment. This is beneficial, as it controls seedlings in treated areas." This method is normally used only on large, dry heads. Spike is broadcast by hand over the entire area where the melaleuca are growing. The pellets break down, and the herbicide is absorbed through the roots. The tree may have to go through several defoliations, but this method has proved effective for large, dry stands of melaleuca.

The third method is simply to uproot seedlings around larger trees. Although once the least-used method, the team is getting rid of more trees this way now, according to Dr. Maffei.

The melaleuca team treated or removed approximately 100,000 trees throughout the summer months. This same field team also has spent time controlling the Australian pine and the Brazilian pepper, both also listed as exotic pest plants.

According to experts, these chemical control measures are only a short-term, stop-gap solution to the problem.

The federal and state departments of Agriculture are conducting tests using insects and pathogens from the melaleuca's native habitat. Once the research is complete, the insects and pathogens likely will be introduced into the environment in hopes of controlling the spread of the melaleuca throughout the wetlands of south Florida.

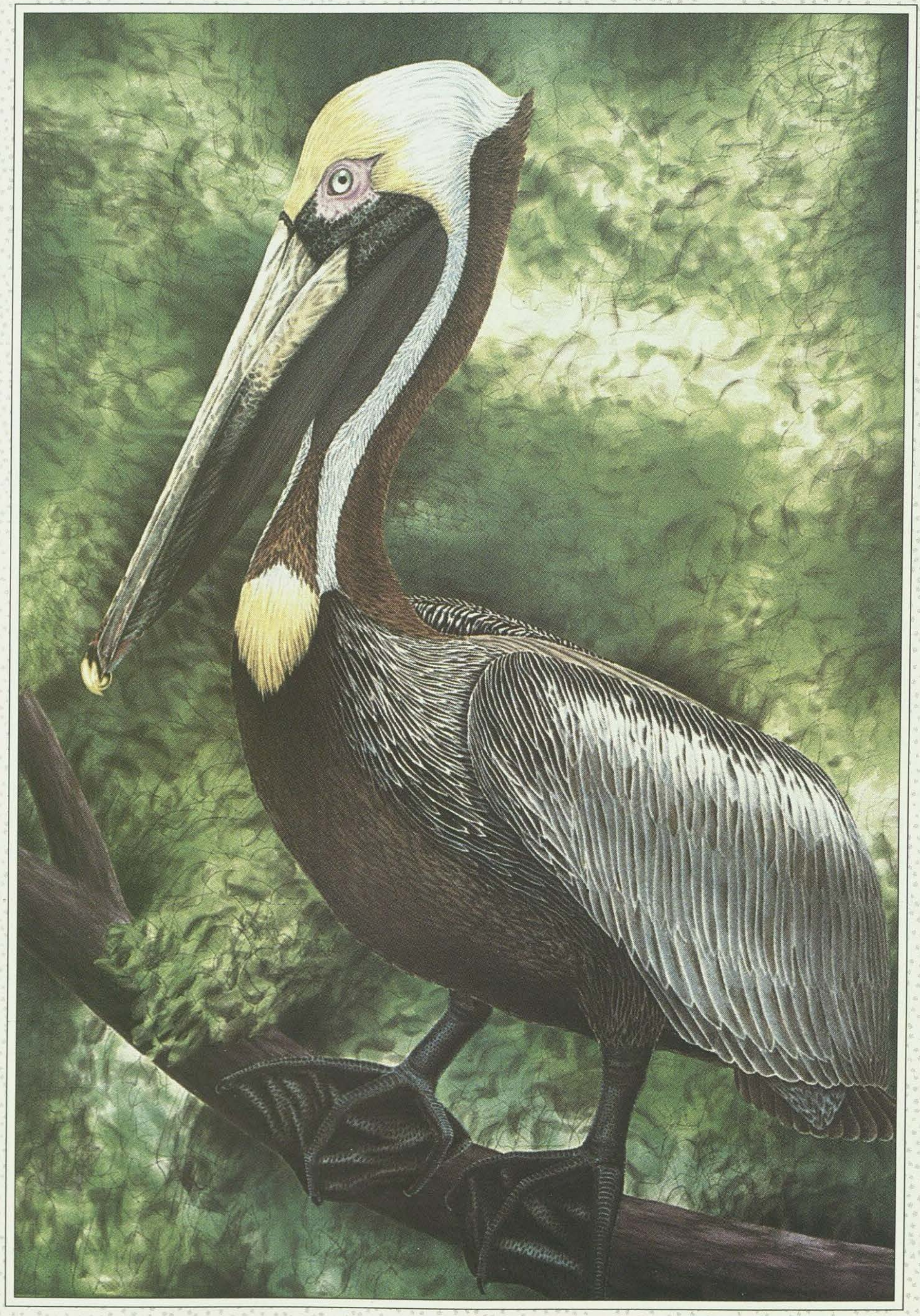
Scientists are anxious to use insects as biological controls to regulate serious, widespread pest plants such as melaleuca.

Water management and federal funding for this program totals $135,000. While it is vital to continue these eradication efforts, it is important that no biological controls are introduced into the environment before their long-term biological impact is known. Previous mistakes must not be repeated.

Richard E. Cauffiel is a free-lance writer/photographer out of Coconut Creek specializing in environmental topics.

printmaker

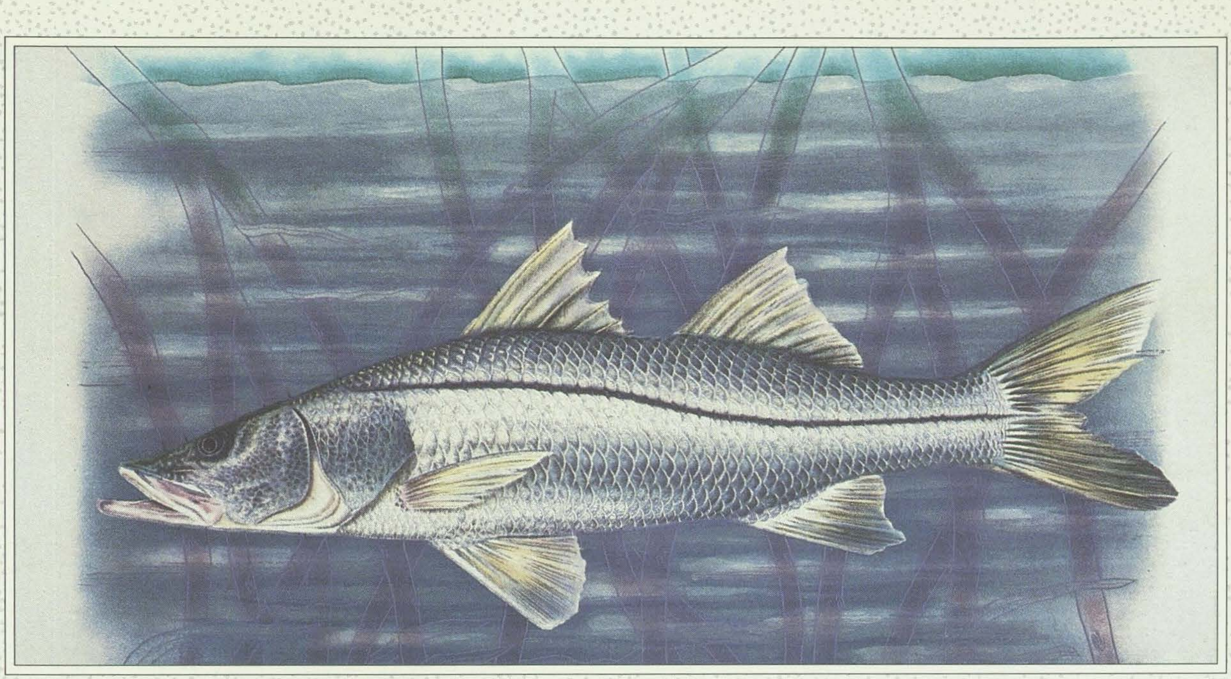
John Costín



Beginning with the artwork of Jacques LeMoyne in 1564, naturalists and artists have explored the region's varied habitats for centuries. Among the notable talents who drew and painted images of our region's abundant wildlife on trips to Florida were Mark Catesby (who visited in 1731-1733), William Bartram (1765-1766, 1773-1774) and John Audubon (1831-1832), whose avian paintings and prints are still valued above those of other nature artists.

John Costin has contributed to the preservation of traditional printmaking artistry in creating naturalistic renderings of Florida's fauna and flora. Costin has diverged from the practices of LeMoyne, Catesby, Bartram and Audubon. He has chosen to emphasize artistic form and design, suppressing environmental and behavioral details so significant in the work of his naturalist predecessors.

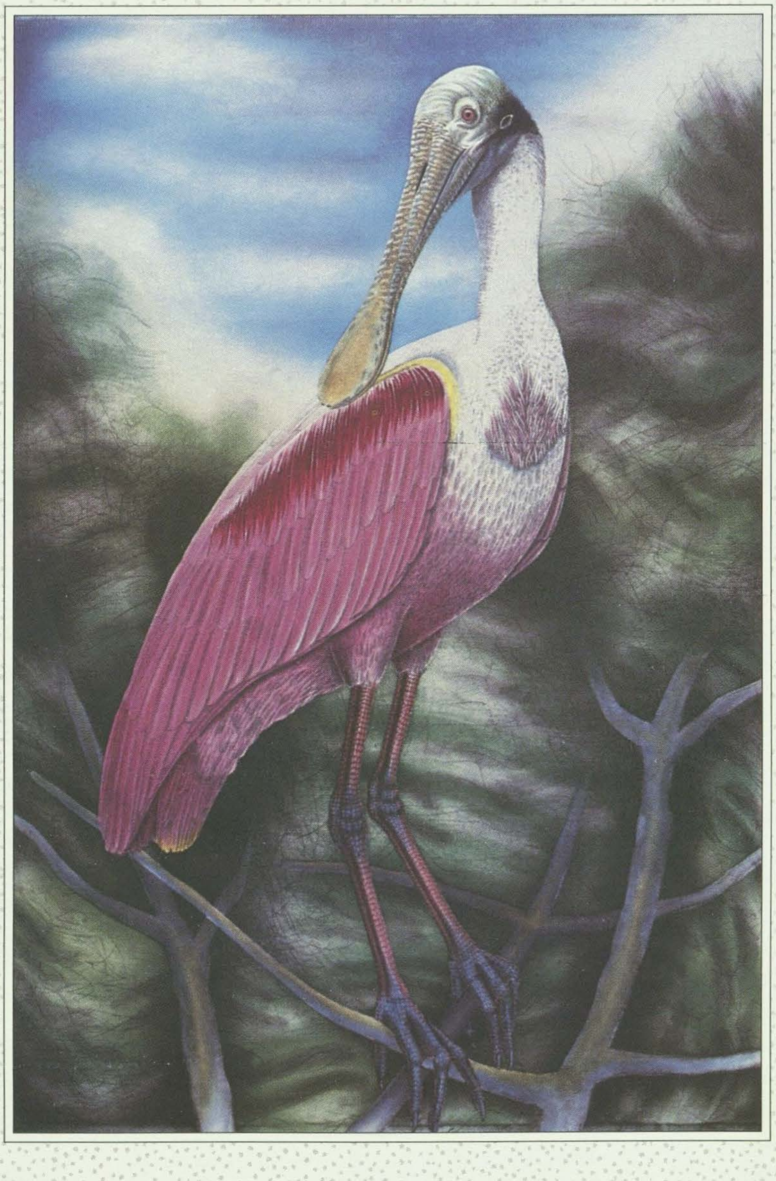
Today, most nature "prints" are mass produced by commercial offset lithography. The artist provides the printing house with an original artwork, i.e. a painting, drawing, etc. The printer then converts the artwork into negatives through photography or electronic scanning. Next, the negatives are used to make the metal plates from which

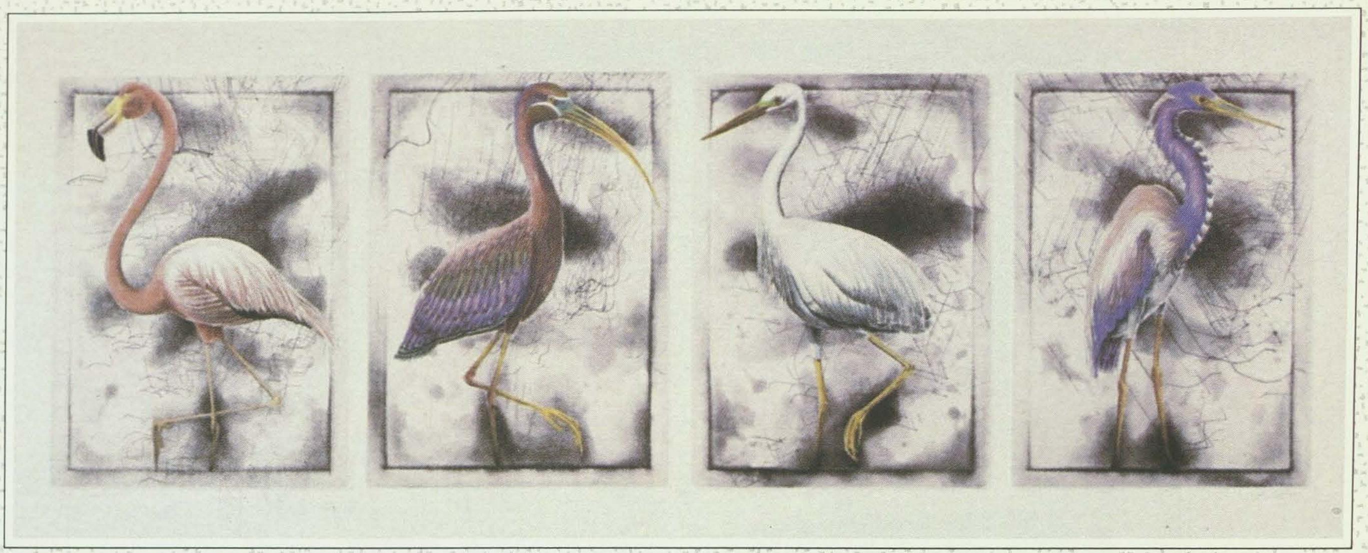


identical reproductions are then printed on an offset press.

Traditionally, artists have hired commercial engravers to etch, print and hand-color their graphics, a practice that continues today. But Costin has hand-etched and printed the copper plates and hand-colored the prints in his Tampa studio. He thus has retained entire control of all aspects of the printing process. Some of Costin's prints have taken over an hour each to pass through the hand press and another four to five hours to hand-tint with oils. Prints produced by this method are never identical; they are called original prints rather than reproduction prints. This tedious and methodical handmade technology has provided the printmaker enhanced opportunities to fully realize the potential of the medium, producing a unique image with each pass of the press.

The major aesthetic difference between Costin's use of the traditional intaglio process and modern offset printing could be compared to the difference between an original oil painting and a poster reproduction. Modern offset printing technology cannot adequately capture the surface textures and color luminosity of an original handmade print. ▷





Costin has employed the full palette of traditional etching techniques in depicting large Florida birds at nearly life scale (24 in. x 34 in.). But the printmaker has chosen to forego preparing detailed pencil studies or finished paintings before beginning work on the finely polished copper plates. Costin has etched and hand-engraved his images directly into the burnished surfaces without the aid of prepared compositions. Mistakes have taken many tedious hours to repair or remove. But the artistic opportunities of direct work on the plate have repaid his labors richly in the quality and imagination of the finished images.

To date, the printmaker has finished five original prints for the proposed 20-print suite that is offered by subscription in a limited edition of 250 portfolios. Costin expects to complete printing and hand-coloring his "White Ibis" print edition soon. A wild turkey print is planned as the next subject for John Costin's suite of Large Florida Birds.

– Rob Blount

1993-94

Waterfowl and Turkey Stamps

By Mark A. Trainor

1993-94 FLORIDA WATERFOWL STAMP

John Mogus of Murrysville, Pa. won first place in the Game and Fresh Water Fish Commission's 1993-94 Florida Waterfowl Stamp design contest with a painting depicting a male American widgeon.

Although Mogus studied painting and design in Pittsburgh at the Art Institute and the Liberty Academy of Art, and has spent 21 years as a commercial artist, he tried his hand at wildlife art only eight years ago. Since 1984, Mogus has designed entries for 15 state and federal duck stamp contests taking first runner-up four times, and always placing in the top 10. He was first runner-up in the Ohio contest in 1987 and the featured artist for two consecutive years for the Forbes Trail Chapter of Ducks Unlimited in Pittsburgh. He also placed in the 1992 federal duck stamp contest.

The Florida Waterfowl Stamp is required in addition to the federal duck stamp and hunting license for taking migratory waterfowl in Florida. Hunters, nonhunters, conservationists and stamp collectors may purchase the $3 stamp from county tax collectors and their subagents beginning June 1. Waterfowl stamp sales generate about $48,000 per year to fund Commission research and management programs for Florida's wild ducks.

Persons interested in obtaining the waterfowl print can contact the artist by writing to: John C. Mogus, 4999 Orr Road, Murrysville, PA, 15668-9615 or by calling him at (412) 325-2770.

1993-94 FLORIDA TURKEY STAMP

A painting of three Florida turkeys by wildlife artist Ron Kleiber of Akron, N.Y. was selected as the winner of the Commission's 1993-94 Florida Turkey Stamp design contest.

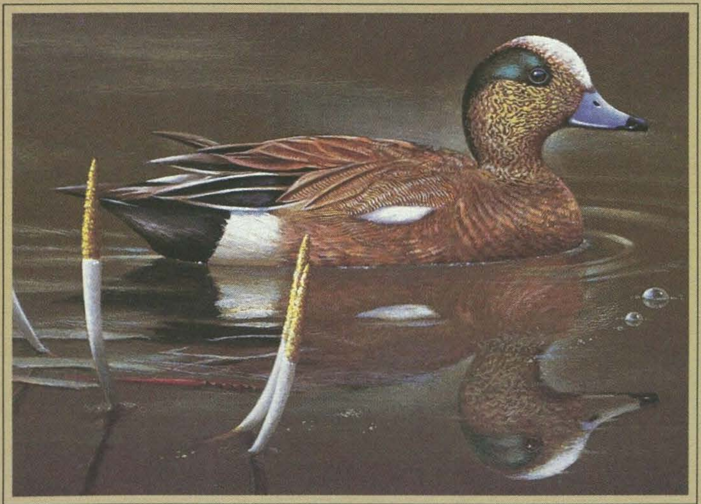
Kleiber has no formal artistic training but attributes his accomplishments to living on the fringe of the 20,000-acre Iroquois National Wildlife Refuge.

"Having access to the refuge, that's practically in my back yard, gives me endless opportunities to study, paint, observe, photograph and hunt," Kleiber said.

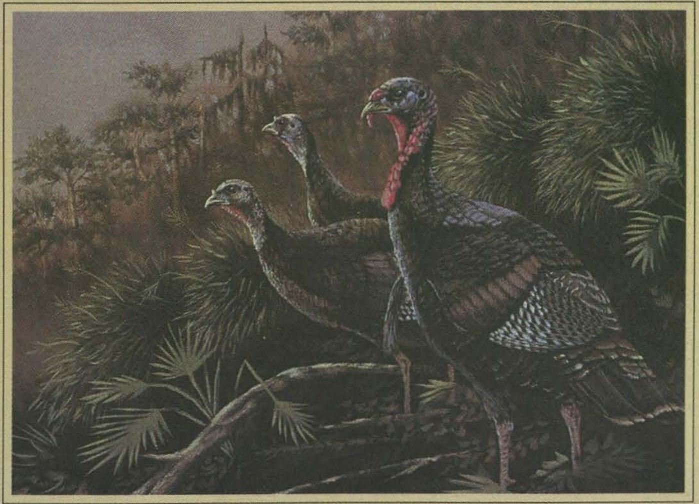
Kleiber's "on-the-job training" paid off in a big way in 1992 by winning several competitions, including the 1993-94 New York Duck Stamp, 1992-93 Delaware Trout Stamp and finishing third in this year's Florida Waterfowl Stamp competition. He was first runner-up in the 1992 Mississippi and Oregon duck stamp contests, the 1992-93 Nevada Trout Stamp contest and also placed in numerous state competitions.

The Florida Turkey Stamp will be available from county tax collectors and their subagents on June 1. The $5 stamp is required in addition to a hunting license to hunt turkeys in Florida. Turkey stamp sales topped $108,000 last year.

To obtain prints of the turkey stamp contact Paramount Press, Trails End Gallery, 55 West Main St., Panama, NY, 14767 or call (800) 647-2901.



American Widgeon by John Mogus



Turkeys by Ron Kleiber

Tricks For Spring Gobblers

Text and Photograph by Aubrey Martin

Florida's spring gobbler hunting is often full of special thrills. I love to see the tip of the sun peek over the horizon, when the eastern sky is often ablaze with various hues of pink, red and finally, bright orange.

Yet these colorful events may take second place as one or more toms hail the daybreak with their exciting *gobbles*. On quiet days, hunters may hear these calls from a half-mile or more away, although they have more success challenging toms within 100 to 200 yards.

Gobbling usually begins at the crack of dawn, sometimes sooner. The hunter could answer with several *yelps*, advance to within 100 yards of the game and set up within good cover. A tree as wide as his body, with some undergrowth in front, should be sufficient. Then, soft *clucks* may help the hunter take a nice gobbler home.

A recent hunt in Nassau Wildlife Management Area (WMA) is a good example of setting up for a tough tom. I was located at the edge of a nice hammock with good cover of hardwoods. After making a few *clucks* with my turkey caller, I heard a *gobble* in response from a slough about 150 yards away. After the tom answered a few of my calls, I advanced through cover. Finally, I set up in front of a large oak with a few palmettos around it. From this vantage point, I began to use soft hen *clucks*.

Now the gobbler's calls revealed he was only 75 yards away. He continued to call, expecting the hen to advance the rest of the way. It was evident I would have to convince him with my calling. I changed from *clucks* to extended *yelps*. Quickly, I added a few *cackles*, and the old tom began to double-gobble as he advanced toward me. In a few minutes, he stepped into plain view, only 30 yards away. He then lifted his head high in search of what he felt would be his mate. It's easy to be nervous at a time like this, but I managed to hold my gun sight steady. I pulled the trigger, and the old tom became mine.

I had another interesting episode one season at Richloam WMA, near Tarrytown. I was close to the tree where a gobbler had roosted the night before, about 25 yards from the dirt road from where I entered. Anticipating that the tom would fly down close to the road, I set up my blind about 20 yards on the opposite side. Because the gobbler was so close, I decided not to call first. In fact, the gobbler did not talk first either; a barred owl hooted nearby, just before daylight. He was so close, the gobbler accepted the challenge and sounded off with a vigorous call, gobbling several times before I gave any answer.

Finally, I made one *cluck*, and that was all that was necessary. In a few minutes, the strutting bird ambled into the road between us. I made a soft *cluck*, and the tom's head shot up high. Already holding the gun to my shoulder, I had to move it only a few inches to collect the grand, old bird.

Some gobblers will hold up and refuse to advance to the hen. I found one like this in Camp Blanding WMA. Once the gobbler had answered my call, I hung back using *clucks*, *yelps* and *cackles*. I called to the bird for 45 minutes, but he would not advance any closer. I did have one trick left, which had been successful before.

After making a sweet hen *yelp*, I followed with a series of gobbler *clucks*. Evidently, this fooled the gobbler. He must have felt that an intruding tom had come to the hen and was about to beat his time. I heard the rapid foot beats of the gobbler running in my direction. Holding my gun in position, I bagged the old boy at 30 yards. He was a fine gobbler, pulling the scales to 19 pounds.

Osceola National Forest offers good spring gobbler hunting. My friend Bill Madray and I hunted there recently. He had never hunted spring turkeys before, so I agreed to tutor him. I selected a choice area where I knew there was a good population of gobblers. At daybreak, I used my voice to imitate an owl. A gobbler sounded off only 200 yards away.

We didn't mind having to wade across a stream of waist-deep water to approach our game. As soon as we stepped upon the bank on the other side, we saw the gobbler. He had been walking along a firelane, and now he was strutting. Fortunately, his head was drawn into his breast, otherwise he likely would have spotted us. We immediately kneeled in the sedge grass, which provided good cover.

Not seeing a hen in our direction, the gobbler began to retrace his steps back up the firelane. This provided time for us to set up for working the bird. Madray found a good hiding spot by the side of the firelane. I took a position about 20 yards behind him.

The first call I used was a plain hen *yelp*. In response, the tom gobbled and began to close in. He gobbled a few more times and continued to approach, so I decided to use a couple of rapid *cackles*. The tom then double-gobbled and seemed to move faster in our direction. Madray was in prone position on the edge of the firelane as the gobbler retraced his steps. Shortly, the bird stepped into the lane in front of Madray. My friend already had his weapon pointed at the area where the gobbler was approaching.

When he spotted a clear target, he pulled the trigger, and the 17-pound prize was his. His colors were gorgeous, his beard was 8 inches, and the spread of his toes was 4 inches. Madray had a right to be proud of his first wild turkey trophy.

Even if you pinned me down, I don't know if I could tell you what I enjoy most about turkey hunting. Maybe it's soaking in the beauty of a sunrise or the excitement of hearing a tom gobble to greet the day. Perhaps it's the pleasure of introducing a friend to the sport, or the challenge of outwitting a wily game bird. One thing's for certain: every time you go out, you'll have a different and interesting story to tell when you return. ◆

Aubrey Martin, a retired minister, has hunted wild turkeys for 35 years. He also spends his spare time as a free-lance writer/photographer, contributing to regional and national magazines.

About Wild Turkeys in Florida

By David T. Cobb, Ph.D.

The following are a few of the most common questions received from the public concerning the ecology and management of wild turkeys in Florida.

Q: How many species of wild turkey are there in Florida?
A: All wild turkeys in Florida belong to the species *Meleagris gallopavo*, but Florida is home to two subspecies. The Florida turkey, M. g. *osceola* , inhabits peninsular Florida from a zone south of Taylor, Lafayette, Suwannee, Columbia, Baker and Nassau counties. The second subspecies is an intergrade with the eastern turkey, M. g. *silvestris*, and occurs throughout the remainder of our state. Compared to the eastern turkey, the Florida turkey is slightly smaller and has less distinct barring on the outer wing feathers.

Q: What are their nesting habits?
A: Breeding begins the reproductive cycle in early spring and is triggered by an increase in temperature and day length. Laying peaks during early April; hatching peaks in late May. Clutches average 11 eggs and hatch in 27 days.

Q: I've read that wild turkeys made a great comeback from low numbers many years ago. Are there any problems that could affect them now?
A: The major factors that affect the dynamics of turkey populations are habitat loss, disturbance, excessive hunting, predation, diseases and parasites. With extreme urbanization and agricultural expansions, habitat loss is the most important factor affecting Florida's turkey populations.

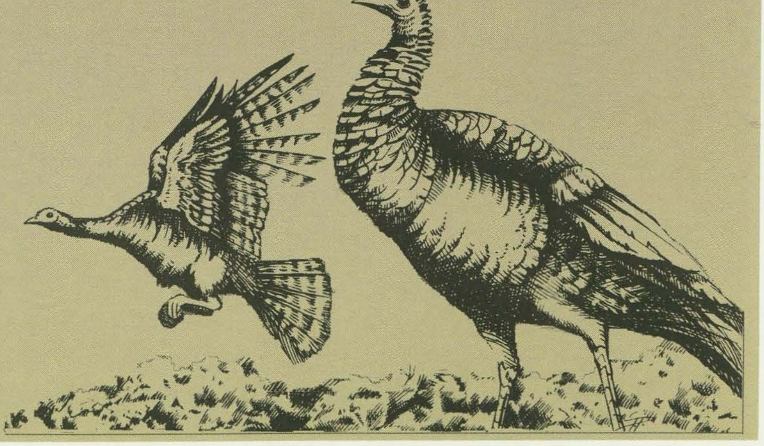
Q: Which animals prey upon turkeys, and is there ever a need for large-scale predator control?
A: The wild turkey is a prey species and therefore, must be able to withstand a relatively high level of predation. Nest predation in Florida has been documented to range from approximately 50 percent to as high as 90 percent. Up to 70 percent of all poults are taken by predators during the first two weeks of life. Primary predators on nests and flightless poults include raccoons, skunks, opossums, foxes and bobcats. The turkey has evolved and adapted as a prey species, so the large-scale control of nondomestic predators is seldom needed, although it is important to control feral dogs and cats.

Q: What sorts of diseases affect wild turkeys, and should I be concerned about outbreaks if I manage turkeys on my property?
A: The most common disease found in turkeys in our state is avian pox. Although most turkeys in Florida contract avian pox at some time, the mortality rate from this disease is seldom significant. Managers do not need to be concerned about turkey diseases unless a die-off occurs. Managers should contact the nearest regional office of the Game and Fresh Water Fish Commission if they observe numerous sick or dead turkeys.

Q: What are the most important steps in managing for wild turkeys on private lands?
A: While regulated hunting can be an effective management tool, it is important to protect turkeys from *over*-hunting and disturbance if they are to thrive. Secondly, habitats must be managed to maximize benefits to turkeys. Maintaining high-quality brood range is the most important consideration in habitat management for turkeys in Florida.

Land managers should maintain a diversity of forest cover types mixed with unforested habitats to maximize habitat quality. Turkeys prefer a patchy but relatively open understory. Burning, mowing or cattle grazing can maintain optimal habitat structure. Overstory diversity should include the perpetuation of hardwood stands.

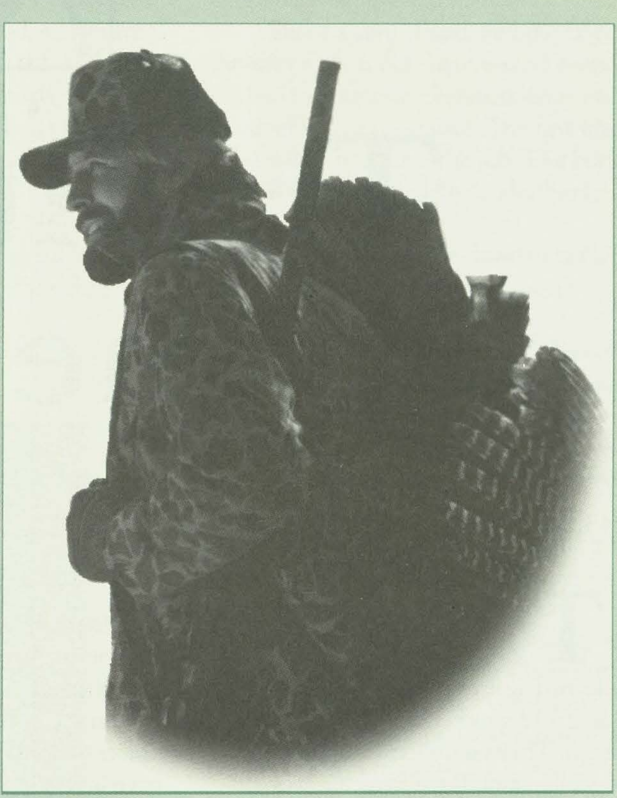
Dr. David T. Cobb heads the Commission's Wild Turkey Management Section in the Division of Wildlife.



Shotgun Cleaning

By Rob Keck

When the spring season is over, be sure to clean and store your turkey gun properly.



1. First, make sure the shotgun is unloaded. Work the action several times to make sure there are no shells in the magazine or chamber.
2. Run a patch with ample solvent down the barrel. If possible, start from the breech end. Run the patch down the bore 10 or 12 times.
3. With heavy shooting, the residue may be such that a brush is required to clean it. After brushing, run the solvent patch down the bore another time or two.
4. Check the bolt and breech for residue buildup. A toothbrush and solvent can do the trick.
5. Clean all gas ports on semi-autos. No oil!
6. Disassemble and clean (with solvent and toothbrush) all working parts of the action. Wipe with light oil cloth.
7. If you plan to use the gun immediately, run an oil patch down the bore, followed by a dry one. Wipe handprints from blued or brown-finished metal.
8. If storing the gun until fall, leave the slight oil coating in the bore and on outside metal parts. Store muzzle-down, preventing excess oil from collecting in the action. Before shooting, run a dry patch down the bore and wipe outside with a dry cloth.

This special care should keep the vital metal parts of your shotgun for many seasons and preserve its shooting accuracy. ◆

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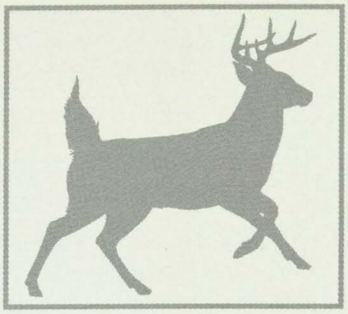


Traditions of Generations

By G. M. Rogers

The month was December, the year, 1966. The 10-year-old boy leaned against his father while tightly holding a 12-gauge, double-barrel shotgun. They sat underneath a sweetgum tree, well-camouflaged in a clump of palmettos. The blind was on a hilltop of hardwoods and slash pines, with wiregrass in most of the open areas. It was a good area for game – all kinds – deer, wild hogs and turkeys.

This morning they came for turkeys. The father yelped softly and then waited. They heard the sound of turkey wings, followed by the thud of a turkey lighting on the ground.

"Get your gun ready," whispered the father. The boy shook; the gun barrel shook. Hens and gobblers were legal, and this was a big hen, like a gray ghost, thought the boy. With the ivory gun sight dancing on the turkey's neck, he pulled the trigger.

"Run, boy! Run, catch your turkey!" the father said, and run he did. Instead of hitting the bird in the neck, his shot was low, breaking both legs. The boy caught up to it and humanely finished the job. He had his turkey, his first!

Father and son rejoiced in their successful hunt. They laid the turkey on the ground beside the tree and straightened its feathers. It was beautiful, the boy thought, just beautiful.

In the distance they soon heard the voices of hounds approaching. The father gave instructions. "Stay put, and keep your eyes open."

> This handing down of tradition and ideals will preserve both families and hunting.

But the hounds had quieted. Maybe they lost the track, thought the young man.

Just then he caught a glimpse of something – a gray flash – then it stopped. There was only silence as the boy gripped the shotgun, straining to hear, to see. Almost in slow motion, with no sound, the deer stepped into the opening and looked directly at the boy sitting in the turkey blind. The gun was on the deer. It's a buck, thought the boy.

"Shoot, Shoot!" his father urged. "He's walking away!" The boy fired, and the buck fell. Immediately the boy was up running toward the deer. He stopped short of the deer, as he had been warned never to approach a downed deer too closely.

The buck suddenly stood up. The boy fired at 10 yards, and the buck went down for good. Buckshot at that range did the job; the first shot had been turkey shot. In his excitement, the young man had forgotten that the right barrel held the bird shot. No matter, he had his first buck!

The father, only a few yards away, came at a run – happy, proud, relieved when he reached the scene. Together they looked at the deer, a nice buck with five points. They offered a prayer of thanks for the deer, the turkey, the day and each other – truly a good day!

That happened 26 years and many hunts ago. I was that boy and have told that story again and again. I still remember every detail. Memories can last forever. I looked at my young son. Maybe today, I thought.

The rain had stopped early that morning, and by now the clouds had blown away. The wind blew in from the northwest, and there was a beautiful blue sky above. Good and cold, a good day to hunt deer.

As I watched Aaron climb up into the tree stand, I hoped today would be his day. He was 11 years old and wanted badly to get a deer. Having an antlerless deer permit doubled his chances.

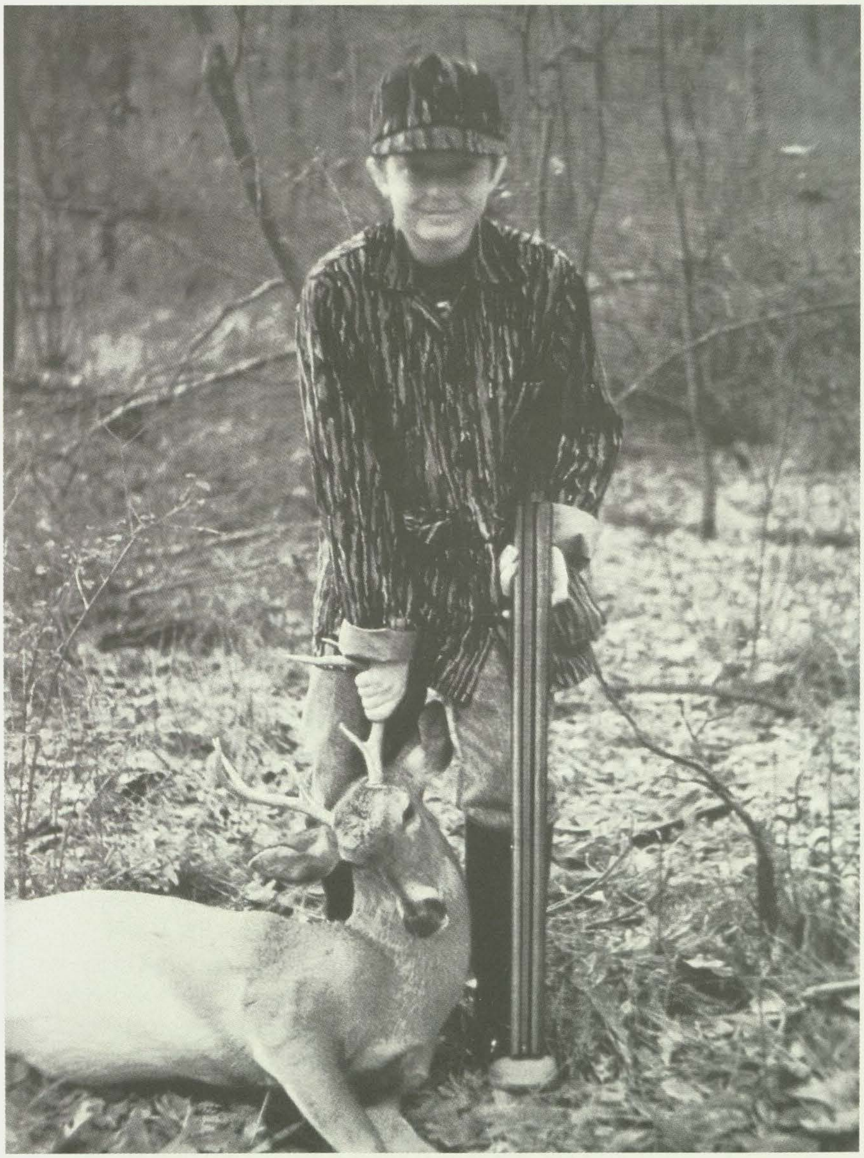
He had grown up around hunters – me, his uncles, his grandfathers – so he was familiar with the sport. He was carrying the same double-barrel shotgun that I, my brothers and my father had used to take our first deer.

We sat in a stand situated on the edge of a large swamp overlooking a large, hardwood ridge. While I was generally familiar with the area, I had not hunted this particular stand. Our host, the land manager for this tract of property, suggested this stand in hopes my son would get a deer.

The warm sun shined directly on us, making it hard to stay awake. I could see the boy was beginning to nod, so I let him lean against me. It was early yet, and we had a little time – but not much, as it turned out. I glimpsed the flash of a deer a hundred yards or so away, moving our way!

"Wake up," I whispered. "Be on the watch." He was half standing, straining to see the animal. "Do you see the deer?" I asked.

"Yes, sir," he whispered back.



The author's son, Aaron, with his first buck.

I could see the deer just well enough to tell it was beginning to act nervous.

"Hold the gun tight and shoot," I whispered. An eternity passed. The gun barrel trembled.

"Hold it tight and shoot, son," I repeated, and he did. I saw a flash of white as the deer lunged sideways.

"Shoot again," I said, and the boy's shoulder jerked, but there was no sound. He had forgotten to change triggers on the double, but no matter. The first load of buckshot had done the job. The buck was down, a beautiful buck, absolutely beautiful!

We approached the downed buck properly and then admired my son's trophy.

"Dad, he has seven points," Aaron said, still shaking. We shook hands and hugged each other.

Back at the truck that evening, we found out my brother's young son, James, had taken his first deer also.

Two young boys, cousins, both with their first deer. I could not imagine two happier young men, or two prouder fathers. Their grandfather, my father, was waiting by the road when we drove out. He hugged his grandsons. As we drove home from the hunt we were certainly a happy bunch of hunters, three generations of one family, blessed to be together to enjoy one more good day!

I was glad our father was with us. It was appropriate; after all, he had started this tradition many years before, sitting in that blind with me, his oldest boy. Because of his love for his family, and his love of the hunt, we had shared the tradition.

This was not the end of a hunt, but the beginning of many hunts, filled with fellowship, companionship, love of each other and appreciation of the land and its bounty. This handing down of tradition and ideals will preserve both families and hunting.

Memories are forever, and ours, I hope, will be filled with many days just like this!

An enthusiastic outdoorsman, G.M. Rogers loves to share his family hunting tales.

It's The Law

By Inspector Kyle W. Hill

Question: What is the difference between bag limits and possession limits?

Answer: A bag limit is the maximum number of game specimens you may take in a day of hunting or fishing. A possession limit is the maximum number of specimens you may have in the field if you hunt or fish more than one day – usually the equivalent of two days' bag limit.

There is a common misconception that you can remain legal as long as you don't have over the possession limit of a game species. For example, if the bag limit of bream is 50 and the possession limit is 100, how many fish can you have after one day's fishing? The answer is 50. You cannot have more until your second day of fishing.

The possession limit is really designed for campers or other travelers who cannot immediately return to their home from lakeside or woods. If camping for two days, you may have the legal possession limit of 100 bream in your camp cooler (on the second day, of course). What if you are camping for three days or longer? Sorry, the possession limit of 100 (two days' bag limit) still applies.

Another misconception is that you cannot have over the possession limit of a species in your home freezer. This is incorrect. Once the game is taken to your home, prepared and placed in your home freezer, it is no longer considered within a bag or possession limit. This does not mean that you may avoid complying with the daily bag limit simply by taking game to your home and putting it in your freezer. But as long as you took the game legally and did not exceed the daily bag limit, you may store it indefinitely in your freezer without breaking state law.

One last thought, if you leave your catch or game at a commercial cooler, you must label it so a wildlife officer can verify the date of catch or take, license number and fisherman or hunter.

[**Editor's note**: The answer to a question in the January-February issue was worded in a way that could be misinterpreted by some readers. What follows is a corrected version of the question and answer.]

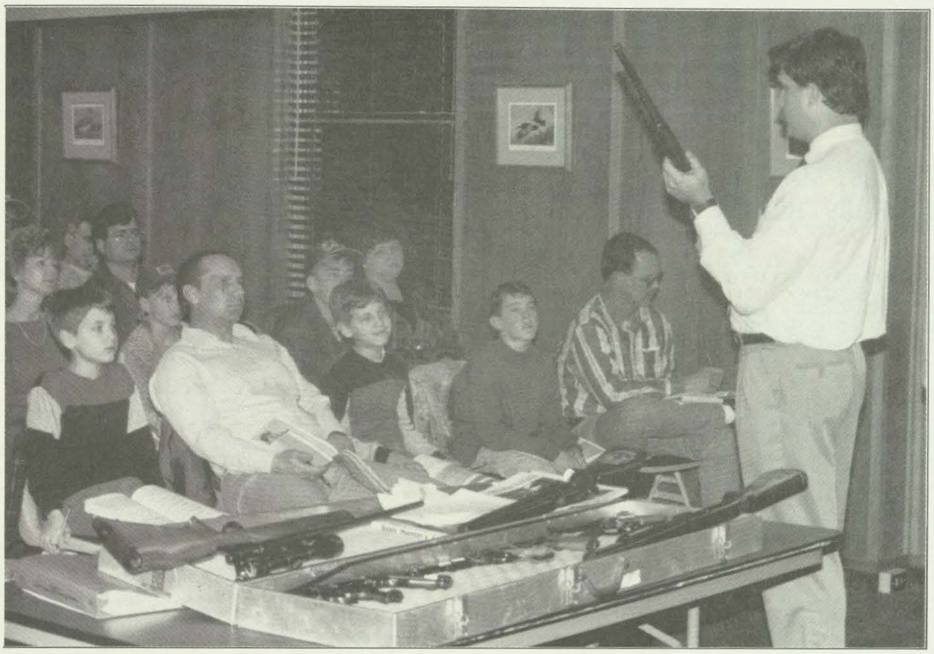
Question: Is it legal to use "sabot" bullets in a muzzleloading firearm during a primitive weapons season? I have a .45 caliber muzzleloader and want to use a .357 caliber bullet in a .45 caliber sabot for deer hunting.

Answer: This is a good question and a very controversial one. In fact, if you're not a muzzleloading hunter, just skip this question, as it gets rather technical. First, a sabot is a plastic carrier used to position a bullet in a gun muzzle. Its purpose is to prevent the escape of gases and make the projectile more efficient. There is no specific prohibition of sabots in muzzleloading hunting, provided that the muzzleloader is not adaptable to the use of self-contained cartridge ammunition. This is not the end of the story, however.

Muzzleloading guns of less than .40 caliber firing a single bullet, or of less than 20 gauge firing two or more balls, are prohibited for taking deer or bear. The intent of the law is to require a bullet with a caliber of .40 or more for taking big game. The reasoning is that a roundball or mini/maxi bullet of this caliber or larger, loaded with the proper powder charge and properly placed, is capable of a clean harvest on deer or bear. However, the language of the regulation is imprecise and was drafted before the advent of sabots for muzzleloaders. Obviously, a .357 caliber bullet does not meet the .40 caliber minimum, but it is being fired from a gun of .45 caliber.

A .357 bullet is an efficient projectile, capable of clean harvests on deer-sized game. Since .45 caliber sabots using .357 caliber bullets have been widely used and accepted by wildlife officers as legal, we will continue to do so. However, if .22 caliber bullets in .45 caliber sabots should come into vogue for muzzleloaders, you can be sure you will see some fast changes in the regulations to eliminate any question on bullet calibers.

By Captain Ed Tyer



BILL BURGIN

You've Just Volunteered!

In those old war movies, a soldier was often handpicked by his sergeant to "volunteer" for extra duty. In life, there are many who gladly volunteer for a good cause.

The Game and Fresh Water Fish Commission has several programs where volunteers bolster our employee ranks. These citizen conservationists help us provide services and accomplish tasks that manpower and budgetary restraints would otherwise prohibit.

From the very top down through the ranks, volunteers are an integral part of the Commission. Did you know that the five Commissioners appointed by the governor actually are volunteers? They donate their time and talents to guide the agency in the protection and conservation of Florida's wildlife resources.

Having worked with volunteers for the past 18 years, I'm constantly amazed at the amount of time and financial sacrifice people endure to contribute to wildlife conservation. Volunteers recently provided the materials and manpower to repair the Everglades Youth Camp.

The Wildlife Reserve program trains volunteers to work in fisheries, wildlife and information/education activities. Some Reservists undergo state-required police auxiliary training to work with wildlife officers. They provide their own uniforms, firearms and other equipment.

One of the Commission's most active volunteer programs is in the Hunter Education program. Since the beginning of this program, volunteer instructors have trained over 200,000 people in safe and responsible hunting practices. Last fiscal year, hunter safety training became a requirement for all hunters born on or after June 1, 1975 to hunt with a firearm, gun, bow or crossbow. During this first year volunteer instructors trained almost 25,000 students. This was up from an average of approximately 9,000 a year. Accomplishing this monumental task takes special people who are dedicated and determined.

In addition to the Hunter Education and Reserve programs, there are several other education and wildlife-related programs that rely on volunteer assistance. The Commission's nongame education section has several opportunities for volunteers. Project WILD and Schoolyard Wildlife programs offer materials and training to teachers. Volunteer speakers assist in educational efforts on topics including scrub, longleaf pine and coastal habitats. The Wading Bird Protection Network and Partners in Flight programs also are seeking volunteers to collect data and raise public awareness.

If you are interested in supporting wildlife conservation by assisting in one of our volunteer programs, please contact your nearest Commission regional office.

Conservation Update

Compiled by Scott Ball

COUGAR TEST MAY LEAD TO PANTHER REINTRODUCTION

Ten western cougars have been released into a wilderness area of northeast Florida as part of a Commission experiment to see if the endangered Florida panther can survive there.

The cats were released in the Pinhook Swamp area of northern Baker County, adjacent to the Osceola National Forest and Okefenokee Swamp. Tom Logan, head of wildlife research for the Commission, expects them to disperse over the 4,800-square-mile area and establish territories.

"This is to be a three-year study," Logan said. "We will evaluate what we have learned at the end of the study, then make a decision concerning the future release of Florida panthers into the area."

Scientists chose cougars to test the area's suitability because they are closely related to Florida panthers, but are not endangered. Fewer than 50 adult Florida panthers are known to exist, mostly in the Everglades and Big Cypress regions of south Florida.

The cougars will not breed in the wild. The males have been sterilized. Meanwhile, radio collars will enable researchers to monitor the cats' movements and behavior on a daily basis.

WILDLIFE VIEWING GUIDE COMING

Where in Florida should you go if you want a close look at bald eagles? What time of year is best for viewing manatees, and where can you join a tour to watch sea turtles lay their eggs?

FLORIDA WILDLIFE will debut a new series in the May-June issue to answer such questions. The articles will be a spin-off from the soon-to-be published *Florida Wildlife Viewing Guide*. We'll spotlight natural areas, including parks, wildlife management areas, refuges and private lands, that offer special opportunities for wildlife-watchers.

During the past few years, many state and federal agencies have invested considerable resources to provide new viewing opportunities for wildlife enthusiasts. Even if you already have favorite recreation spots, get ready for some surprising new adventures!

The *Florida Wildlife Viewing Guide* will be part of a nationwide series of state wildlife viewing guides coordinated by the Defenders of Wildlife and published by Falcon Press. The Commission is the major state sponsor for the book, which will be available for purchase in November 1993.

– Susan Cerulean

IT'S SPAWNING TIME, CAREFUL WITH THOSE BASS

This is the time of year when trophy bass, those weighing 8 pounds and up, are most vulnerable to fishing pressure. It's also a good time to remind anglers of the new bag limit for largemouth bass that went into effect last July.

The statewide daily bag limit for bass is five, and only one of those fish may exceed 22 inches in length. In addition, there is a minimum length of 14 inches for bass taken from waters south and east of the Suwannee River. For bass taken from the Suwannee, its tributaries, and all other waters north and west, the minimum length is 12 inches. Also, anglers may not fillet or remove the heads or tail fins of their fish until they are through fishing for the day.

It's important to use proper catch-and-release techniques with your big bass to ensure that it survives. Most fish caught and released properly do survive, and many are caught again.

The Commission sponsors a Big Catch program to recognize anglers who catch fish that meet minimum qualifying weights. Anglers catching a largemouth bass 10 pounds or heavier can receive a four-color certificate. Also, those who release their big catch unharmed will receive special recognition on their citation.

For more information on catch-and-release or the Big Catch Program, contact the nearest regional office of the Commission.

FLORIDA, CALIFORNIA HAVE MOST ANGLERS

According to preliminary results of a recent U.S. Fish and Wildlife Service (USFWS) survey, Florida and California lead the nation in numbers of anglers, with nearly 2.7 million each. Texas has the most hunters – more than 1 million.

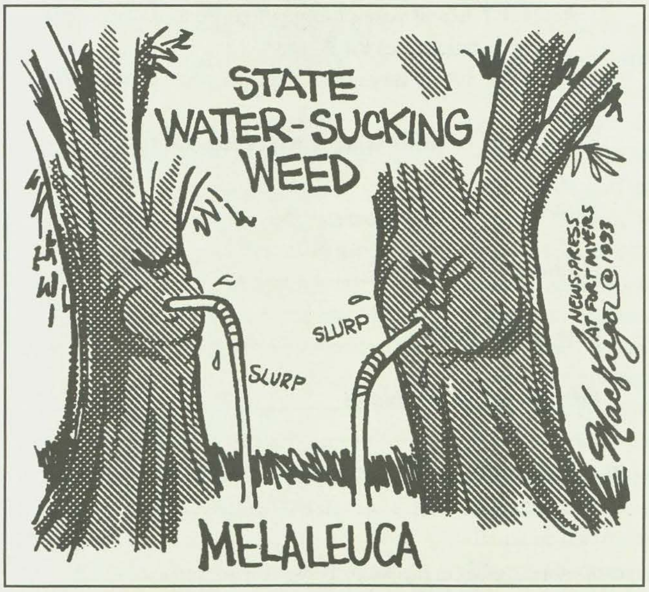
The results show that more than 100 million Americans age 16 or over enjoyed some activity related to fish and wildlife in 1991. A total of 40 million fished or hunted, and 76 million participated in nonconsumptive activities. The annual economic impact of wildlife-related recreation is about $58 billion, or about 1 percent of America's gross national product.

In Florida, more than a quarter-million persons hunted, and nearly 6.2 million residents and visitors participated in nonconsumptive activities. Expenditures for hunting, fishing and nonconsumptive activities in Florida exceeded $3.1 billion in 1991; more than half that amount was spent on fishing.

The USFWS conducts the survey every five years to learn how many Americans participate in wildlife-related recreation. The information is used by wildlife managers to help meet changing demands on fish and wildlife resources.

PRODUCTIVE COMMISSION EMPLOYEES, PROGRAM RECOGNIZED

Several employees and one program of the Game and Fresh Water Fish Commission have received Davis Productivity Awards for enhancing government efficiency and saving taxpayers' money.



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Fisheries biologist David Yeager was recognized for his work with the North Florida Streams Research Project. His work increased a negligible production of striped bass and hybrids at the Commission's Blackwater Fish Hatchery in 1988 to 636,000 in 1992. The market value of the fish produced in 1991-92 and released into the Escambia and Apalachicola rivers was $189,000.

South Region fisheries biologists Lothian Ager and Tom Rosegger identified shortcomings of a 1989 lake revegetation project and designed a new one. They transplanted 65,940 plants for 30 cents per plant less than in 1989 – saving $16,984. Also, they completed the new project five months sooner than in 1989.

Public information specialist and FLORIDA WILDLIFE assistant editor Scott Ball headed a project to offset production costs for hunting and fishing regulations booklets through paid advertising. Ball's efforts saved the Commission $30,150 in 1991-92.

The Commission's Wildlife Reserve program also was recognized for its use of volunteers in assisting wildlife, fisheries, law enforcement and information/education projects. In 1991, volunteers donated 58,610 hours, worth $550,000, to the Commission.

The Davis Productivity Awards are sponsored each year by Florida TaxWatch, the Florida Council of 100 and the State of Florida. They are named for J.F. Davis and A.D. Davis, co-founders of both Winn Dixie Stores, Inc. and Florida TaxWatch.

MANATEES FARED BETTER IN 1992

Although approximately 15 percent of Florida's manatee population died in 1992, the actual number of manatee deaths declined from the previous year, according to the Florida Marine Research Institute.

Manatee deaths totaled 162 last year, a decrease from 174 in 1991. Of those deaths, 49 were due to human-related causes, 68 were natural and 45 were from undetermined causes. Each fatality category showed a decline from the previous year.

The manatee, Florida's official marine mammal, is an endangered species. Their current population is estimated to be 1,200.

Report Wildlife Law Violators and Polluters!

Wildlife Alert

CALL TOLL FREE

Panama City	1-800-342-1676
Lake City	1-800-342-8105
Ocala	1-800-342-9620
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West Palm Beach	1-800-432-2046

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Telephone: (904) 758-0525

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Ocala, FL 32674-2723
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Floridana

50 Years of Fisheries Management

Florida's first freshwater fishing regulation was passed in 1855, only 10 years after statehood and 58 years before the first state game commission was formed. That earliest law prohibited non-residents from using haul seines for fishing lakes Iamonia and Miccosukee in Leon and Jefferson counties.

The first game commission, formed in 1913, set bag limits, established minimum size regulations for bass, closed spawning seasons to fishing, and banned most fishing nets.

In 1925, Gov. John Martin created another game commission, since the first one lasted but two years. The primary responsibility was the "protection of the fish in Florida's vast freshwater area." Regulations established at the time set minimum size and creel limits on bass, closed certain seasons and banned some sales and shipments of bass.

In 1941, voters approved a constitutional amendment establishing the Florida Game and Fresh Water Fish Commission to be responsible for protecting the state's wildlife and freshwater fish. The agency was given authority to set bag limits, establish closed seasons and regulate the manner and methods of taking freshwater fish.

The Commission developed a philosophy of basing regulations on scientific principles and stressing habitat improvement and protection. The Division of Fisheries began gathering research data to use in making sound management decisions.

At first, the Commission encountered difficulties in establishing its authority to regulate fish as provided under the state constitution, and it was frequently necessary to test that authority in state courts. One such issue, which involved frequent legal battles, concerned the sale of freshwater game fish. This issue was contested until October 1946 when the prohibition regarding the sale of any freshwater game fish came into effect throughout Florida.

Previous commissions had attempted to provide liberal regulations aimed at supplying an abundance of fish for recreational fishing. Many earlier regulations were deemed unnecessary for proper conservation of fish and abolished by the new Commission. Some were adopted on the principle that more restrictions made for better conservation. Little if any regard had been given to biological principles. Regulations limiting anglers to a single cane pole, or outlawing fishing during bass and bream spawning seasons, did not serve a conservation purpose, and thus were eliminated by the new Commission.

The Division of Fisheries' present philosophy is to manage freshwater fish for "optimum sustained use." This concept reflects the Commission's desire to perpetuate the resource. By referring to "optimum use" rather than "maximum yield," the Commission recognizes the variety of values associated with aquatic resources. These values not only include sport, food and commercial fishing, but also relate to the beauty and diversity of Florida's ecosystems.

– Mark A. Trainor